

GRIEF IN RESPONSE TO PRENATAL LOSS:
AN ARGUMENT FOR THE EARLIEST MATERNAL ATTACHMENT

BY

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GRIEF IN RESPONSE TO PRENATAL LOSS:
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There has been relatively little research which has addressed grieving processes to loss in pregnancy. Many persons have assumed that no maternal attachment occurs in pregnancy and therefore that grief should not occur at loss. This study has been directed at observations of grieving reactions to losses occurring at all times in pregnancy and the variables affecting those reactions.

Thirty-eight subjects experiencing prenatal loss were interviewed at one month postpartum regarding their experiences during the previous month. The structured interview was taped, edited, and blindly rated on a 10-scale rating system of grief symptomatology. Inter-rater reliability was established.

As was predicted, when employing a stepwise regression model, gestational age accounted for approximately 33% of the variance in grief score, and the variance accounted for was increased to over 40% with the addition of number of children as a second variable. The number of previous pregnancy losses and the degree to which the pregnancy was wanted were not significantly associated with grief score.

Demographic variables as predicted, were not associated with grief score, except for age which showed a slight negative correlation.

The relationships of grief score with the variables described above are discussed. Implications for maternal attachment in pregnancy and directions for further research are offered.

INTRODUCTION

In the last 20 years there has been a diverse and expanding literature on maternal-infant attachment. Bowlby (1958) first used the term attachment to imply an innate affectional bond between the caretaker and the infant, and thereby established a researchable construct, distinct from the behavioral/psychoanalytical notion of dependency. The field of attachment and attachment behaviors has served to produce prolific theoretical and empirical accounts.

At the same time, the last 10 years have been characterized by a growing body of psychological literature dealing with the construct of grief. The field of human grief and grieving processes has recently led to theoretical systems, although empirical investigations of grief have been limited. While grief may be described as the psychophysiological reaction to the severing of an attachment (Bowlby 1961; Parkes 1972) the literature equating elements of attachment and grief is almost nonexistent outside the works of Bowlby (1969, 1973, 1979) and Parkes (1972). Persons who are researchers in the area of grief tend to focus solely on the components, outcome, and treatment of grief (e.g., Lindemann 1944; Parkes 1972; Sanders 1977). Persons researching attachment are even more focused, with their empirical efforts oriented towards the development of attachments primarily in infancy (see e.g., Schaeffer and Emerson 1964; Ainsworth 1972; Rajecki, Lamb, and Obmascher 1978). When grief is mentioned in the attachment

literature it is used primarily to demonstrate an element of separation effects, when the infant is separated from his mother.

Grief and attachment, however, are not distinct nor separable entities. They are reciprocally involved with one another without regard to differential theoretical explanation. The processes of attachment are intertwined with the processes of grief; an attachment always risks the occurrence of grief and grief is as specific to the bereaved individual as the attachment was.

The relationship between grief and attachment has not often been studied in a scientific vein. The aim in this paper is to prepare an argument in which the presence of grief will be maintained to be the evidence of a lost attachment. The argument herein is aimed in a more focused sense at prenatal maternal attachment to the unborn child as evidenced by the existence of perinatal bereavement syndrome, or grief at perinatal and fetal death. In order to adequately set forth a thesis on the timing and elements of prenatal maternal attachment, it will be necessary to focus on the literature of maternal attachment and the literature on grief including the psychology of stillbirth. The proposed order of this paper shall focus firstly on maternal attachment, and secondly on the processes and elements of grief. A third attempt will be made to tie together the constructs of grief and attachment in a fashion which shall facilitate the argument for the existence and timing of the mother's attachment to the unborn child and the crossroads of grief and attachment. Those who are interested in theories and research on infantile attachment are referred to Kirkley-Best (1981).

MATERNAL ATTACHMENT

Relatively little research has dealt with maternal attachment until recently. There has been a curious twist to the research as well for while infantile attachment literature has focused largely on the child's 3rd and 4th quarter of life, the period immediately following birth has spawned the most research interest in regard to maternal behavior. This idea of a sensitive period for maternal attachment is usually studied under the rubric of "bonding." Prior to the latter half of the 1970's, however, only a few authors concerned themselves with maternal attachment. Brody (1956) looked at patterns of maternal behavior in a group of 32 mothers, but her work dealt to a large degree with feeding behavior and was interpreted in a psychoanalytic context. The focus of psychoanalytic theorists on feeding behaviors has not fared well as being the sole determinant of mother-child attachment. Newton (1951) focused on mothering styles as they related to personality variables in the child, but again, the bond between the two was not the central issue.

Robson and Moss (1970) were two of the first researchers to focus attention on the mother's tie to the child. In a study of 54 primiparous mothers qualitative data were collected regarding the mother's "level" of attachment. Women were interviewed shortly before birth and several times after delivery until their children were three months old. Attachment was defined as the "extent to which a mother feels

that her infant occupies an essential position in her life" (Robson and Moss 1970, page 977). Based on their interviews, Robson and Moss concluded that while in the hospital most women report "affection" for their babies, they tend to see their infants as "non-social objects." Further, many women in this study even reported negative feelings about the new "intruder" in their lives in the first several weeks of the child's life. Maternal attachments during this period are not true attachments according to Robson and Moss and are in part attenuated from the in-hospital stay.

In the second month, however, maternal attachments begin to intensify. According to Robson and Moss, this is in large part because they come to perceive their infant as responsive. The visual and gaze smiling behaviors of the infant at this age are seen as "rewards" for mothering. Mothers feel by this time that their infants recognize them and this seems to solidify maternal attachment (Robson and Moss 1970). Robson (1967) has remarked that parents of blind infants often take offense at misinterpreted gaze aversions by the infants.

Robson and Moss (1970) made a valuable contribution to the field of attachment study by focusing research attention on maternal variables. Their research, however, was lacking on many points. Their definition of attachment was rather loosely defined. One of the qualifiers was that a mother who was attached to the infant would experience a sense of loss at the babies' absence. It is hard to see how an unattached mother would grieve at a newborn's death (before 3 months), and yet in studies of stillbirth mothers and mothers who lose newborns almost every mother has been observed to grieve at the loss (Kennell, Slyter and Klaus 1970). It is hard to imagine that the examples of the

mother's comments are in any way typical or representative of most mothers on infants 1-2 months of age. One mother for example characterized herself as feeling no connection with the child; another mother dreamed of her baby being a monster in the crib. While frustrated new mothers occasionally make similar comments under the fatigue and stress characterizing the newborn period, these comments seem unwise as characterizations of early attachments. The Robson and Moss study was an uncontrolled, descriptive study and much more positive characterizations of early maternal attachments are found elsewhere in the literature (e.g., Rubin 1975).

One observation in the Robson and Moss study is of particular interest. Over 75% of the mothers had traditional hospital care which involves a great deal of separation in the in-hospital period. As shall be seen in the following section, researchers have, since the Robson and Moss study, taken a keen interest in the critical nature of the post-partum period in maternal attachment. While Robson and Moss felt that mothers who chose "rooming-in" (keeping the baby by the mother's hospital bed instead of the newborn nursery) gained no advantage in establishing attachment with their infants, this subjective determination, as shall be seen, was premature.

Maternal-Infant Bonding: An Argument for a
Sensitive Period in the Development of
Maternal Attachment

In a variety of studies with animals, there appears to be a critical period for maternal attachment to the infant shortly after birth. If in this critical period the mother-infant pair are separated,

there can be a severe disturbance in maternal behavior towards the young when the infant is returned to the mother. The effect has been noticed in dogs, goats, sheep and cattle (Hersher, Moore and Richmond 1958; Scott and Marston 1950; Arling and Harlow 1967; Klaus and Kennell 1975). Evidence of this sort led some researchers to believe that there might also exist in the human mother a sensitive period for attachment following birth.

Klaus, Kennell, Plumb and Zuehlke (1970) began this investigation into the concept of a sensitive period in a study designed to observe any consistencies in maternal behavior at first contact with her young. Twelve mothers of normal infants and 9 mothers of preemies were observed. Systematic progressions of maternal behaviors were observed in both groups. In the words of Klaus et al.

. . .the mothers started with fingertip touch on the infants extremities and proceeded in 4 to 8 minutes to massaging, encompassing palm contact on the trunk. (Klaus et al. 1970, page 187)

According to these researchers, most mothers began with a predominance of fingertip touching (52%) and progressed in a number of minutes to a predominance of palm contact. These authors like others (Robson 1967) also noticed the central importance of eye-to-eye contact even in the first few minutes of mother-child interaction. The remarkable similarity in maternal behavior led the researchers to postulate a sensitive period immediately following birth during which species-specific behaviors took place (Klaus et al. 1970).

Since the Klaus et al. study there has been a growing body of evidence emphasizing the importance of the first few post-partum hours. This evidence has taken several forms. Several researchers have looked

longitudinally at the effects of separation usually comparing groups of extended early-contact mothers with limited early-contact mothers. Another area of contribution has dealt with physiological and cognitive factors which predispose a mother to a sensitive period in her attachment to her infant. These areas will be discussed separately.

Bonding and Separation Effects

Barnett, Leiderman, Grobstein and Klaus (1970) published one of the first accounts of the effects of interactional deprivation in a study of mothers of premature infants. While only descriptive data were collected on the mother's emotional status, the conclusion drawn was that increased contact with the premature infant resulted in more confident and secure maternal attitudes. Perhaps the most significant finding in this study was that there was no increased risk of infection in the infants whose mothers were allowed to hold them and see them. This was not a minor point. Klaus and Kennell (1972) in reviewing the history of hospital care for full-term and premature infants had noted that around the turn of the century mothers were not only allowed to care for preemies but were strongly encouraged, and most full-term births occurred at home. By the mid 1900's, however, it was not only standard practice to separate mother and infant in hospital routine, but also to exclude her from child care matters. This physical separation of mother and newborn has been standard practice in most American hospitals, due partly to the convenience of the staff, and partly to the unsubstantiated "risk of infection" (Klaus and Kennell 1972).

With the knowledge that there was no increase in physical risk to infants, researchers began to be willing to experiment with the effects of allowing extended contact in the post-partum period. The first study of this sort was conducted by Klaus, Jerauld, Kreger, McAlpine, Steffar and Kennell (1972). Twenty-eight primiparas were divided into 2 groups of 14 each. In the control group, mothers received limited physical contact with their infants, typical of prevailing hospital policy. The second group or extended contact (EC) group were afforded 16 extra hours of infant contact during their hospital stay. When maternal behavior was rated blindly one month later several statistically significant differences were found. During a routine infant exam, EC mothers attended to the procedure most closely. In a structured interview, EC mothers reported a reluctance to leave their infants in someone else's care. During a filmed bottle feeding situation, EC mothers exhibited significantly more soothing behaviors and a greater degree of eye-to-eye contact.

These mothers were followed up again at 11 months post-partum, and the EC mothers still showed significantly more soothing behaviors to their child's cries and attentiveness during a well-baby exam (Kennell, Jerauld, Wolfe, Chesler, Kreger, McAlpine, Steffa and Klaus 1974). At 2 years of their infants age, a subsample of 5 mothers in each group was studied in terms of mother-to-infant speech. When checked at age one, the only difference in the EC and control group mothers in terms of speech was that the EC group used fewer statements. When the child was 2 years of age, EC mothers used fewer content words and more adjectives in speech to their toddlers. They (EC) also used fewer

commands, asked more questions and used more words when making propositions to their infants than did mothers from the control group. From the time their infants were 1 year old to the time they were 2, EC mothers showed an actual decrease in use of verbs and commands (Ringler, Kennell, Jarvella, Navojosky and Klaus 1975). Ringler et al. (1975) concluded that the EC mothers were by all measures more attentive and appropriately sensitive in verbal interactions with their children, an observation which would most likely have great effect on the child's future behavior.

Other researchers have found similar effects. Hales, Lozoff, Sosa and Kennell (1977) observed 60 Guatemalan primiparas in three groups. Group I was a control group receiving routine care, group II received 45 minutes of extra contact with their infants immediately after birth (EC-early) and group III received 45 minutes of additional infant contact 12 hours after birth (EC-delayed). When observed for maternal behavior differences at 36 hours post-partum EC-early mothers showed significantly more kissing, smiling, fondling, talking and "en face" behaviors than did control mothers. No differences were found in regard to caretaking and proximity maintaining behaviors. The one behavior that seemed to have the most differentiating effect among groups was the "en face" behavior, or the holding of an infant such as to maximize eye-to-eye contact. With regard to en face behaviors, EC-early mothers received ratings significantly higher than both the EC-delayed and the control group mothers. The importance of eye-to-eye contact in attachments has already been discussed, and these findings by Hales et al. again contribute to evidence for a sensitive period in human mothering.

Two studies of Swedish primiparas have yielded additional information regarding a maternal sensitive period (cited in Lozoff, Brittenham, Trause, Kennell and Klaus 1977). In the first study by Carlsson, 62 middle class mothers were observed particularly in breastfeeding situations. The EC mothers in this study were afforded an additional hour at birth with their babies. These EC mothers were compared with a control group unlike previous control groups in that Swedish hospitals afford a great deal of mother-infant contact as standard practice although usually not till several hours after birth. Nonetheless when observed on the 2nd and 4th days of hospitalization, the EC mothers showed significantly more physical affection towards their infants while nursing. Even if these effects are temporary, Lozoff et al. (1977) note that the hour right after birth can be a particularly sensitive period for maternal attachment.

In another study of Swedish primiparas, de Chateau (see Lozoff et al. 1977) compared the effects of a group treated with 15 minutes of early physical mother-infant contact with a control group treated according to hospital routine. (In this hospital, treatment was similar to American hospitals; while mothers saw their wrapped infants in a nearby crib for approximately 1 1/2 hours 30 minutes after birth, during the next 3 days they only saw them at 4 hour feeding intervals.) EC mothers received the same routine treatment as the control group following their extra contact. Even under this minor manipulation, at 36 hours post partum the EC mothers showed more sitting up, holding, close carrying and cradling behaviors when with their infants than did control group mothers. As much as three months later EC mothers showed

more kissing and en face behaviors in an in-home 10 minute free-play situation. Babies of EC mothers showed more smiling and laughing behaviors and less crying than did control group babies. Since in both Swedish studies mothers see their babies shortly after birth, Lozoff et al. (1977) have noticed the critical role of physical contact in the sensitive period.

Perhaps the most convincing evidence of the importance of the first post-partum hours has come in an unpublished but widely-cited study by O'Connor (in Lozoff et al. 1977; Campbell and Taylor 1979). Two hundred seventy-seven American low-income primiparas were randomly assigned to differing post-partum conditions. The control group received routine care; the EC group were given up to 8 additional hours with their infants. When these women were followed up one to two years later only one case of child abuse was found out of 134 EC mothers. On the other hand, 9 out of 143 late contact mothers exhibited a parenting disturbance resulting in their child's hospitalization owing to reasons like failure to thrive and child abuse. A study by Peterson and Mehl (1978) looked at 46 mothers in the last trimester of pregnancy, 7 days after birth, and then again at 1 month, 2 months and six months after birth. Peterson and Mehl found that the length of separation of mother and infant post-partum was the greatest "predictor" of later attachment scores. The results of this study can only be viewed as tentative, though, due to many design deficiencies, unvalidated measurements and risky interpretations.

While not arguing against early separation effects, Fields (1977) in a complex study of mother-infant pairs involving pre-term, term, and

post-term babies demonstrated a somewhat more complicated interaction between early separation and characteristics of the infant producing worry in the mothers. According to Fields, extended post-partum contact in and of itself does not insure healthy mother-infant attachment later. Family situation, health of the infant and so on may obscure the effects of early contact. Likewise, early separation does not guarantee later aberrant attachment patterns. Nonetheless, a sensitive period does seem to exist around the time of birth, and additional factors in this early period lend themselves to this early, heightened emphasis on attachment.

Factors Influencing the Sensitive Period

It has been known for sometime that just the sight of an infant elicits favorable responses from adults. This effect, termed "babyiness" by Lorenz, seems to hold for the young of most species in regard to human preference (Brooks and Hochberg 1960; Fullard and Reiling 1976). It seems reasonable to assume that a mother's first view of her infant elicits even more intensified responses to the "cute" infant than more generalized responses.

There is some evidence that mothers are able to differentiate painful infant cries from hunger cries. Formby (1967) found that most mothers were able to accurately distinguish their infants' cries from those of other infants within 2 days after birth. The difficult discriminative learning involved in the recognition of infant cries may indicate a greater attentiveness than usual on the part of the mothers in this period.

Physiological changes may contribute to an argument for a sensitive period. In a recent paper Kimball (1979) noted an excess of endorphins in the placenta at the time of birth. Endorphins have been associated with "good" feeling states, and Kimball postulates that in labor and delivery the endorphins may be released into the mother's system resulting in a pleasant emotional state at birth. This period of pleasurable feeling might well facilitate feelings of attachment in the human mother.

When talking about a sensitive period for human attachment in the post-partum period, most of the concentration has been on the mother's sense of attachment. Current developmental research, however, has demonstrated that the neonate is more competent than previously thought and at the moment of birth possesses the behavioral capacity to interact with the mother at some level. Brazelton (1963) and Campbell and Taylor (1979) have noted research indicating that infants are alert and wide-eyed for about one hour after birth although this length of this period may be affected by maternal medication received in the course of delivery. After this hour of attentiveness infants usually fall asleep for long periods. Knowing the centrality of eye-to-eye contact in establishing attachments, it follows that this infantile alertness period which so closely coincides with a time when mother-infant separation has lasting effects adds strong contributory evidence to support the idea of a sensitive period in human attachment. Lozoff et al. (1977) have noted that even a crying or drowsy neonate will become alert when lifted to the mother's shoulder, arguing again for the critical role of physical and not just visual contact. The heightened sensitivity of

both mother and child is also reinforced by the observation that at birth the infant will differentially respond to sounds within the range of the human voice, and at 1 week neonates will react with distress at their "masked" mothers. Attachments for both mother and child, while qualitatively different from attachments formed after the 3rd quarter of life, seem nonetheless to take dramatic hold at the time of birth and in the neonatal period in general.

Maternal Expectations

Before moving to a discussion of maternal attachment in pregnancy it is fitting to mention a small body of literature which has dealt with a mother's expectation of what her baby will be like. As Klaus and Kennell (1976) have pointed out, a mother must come to reconcile her "inside" baby to her actual infant. Most often the "inside" infant is idealized to a degree that would put the Gerber baby to shame. Actual infant outcome, however, is almost never in complete accord with maternal expectations. This discrepancy may range from something as simple as having pictured the brown haired infant as blond to dissatisfaction with the baby's gender. Kaplan and Mason (1960) have pointed to maternal reactions to premature birth as evidence for the sometimes difficult adjustment to unconfirmed expectations. They have set a course of tasks which the mother of a premature infant must work through in order to deal with the outcome of a sick infant. Bidder, Crowe and Gray (1974) have likewise noted that even the mother of a term infant sees a discrepancy between this child and their ideal child. The most beautiful child in the first minutes after birth, with elongated skull,

covered in vernix, cannot meet the mother's expectations (Brazelton 1963). The need to reconcile this discrepancy of the ideal to the real child is used as a further argument toward keeping the mother-infant pair together in the moments after birth so that this maternal cognitive task may be successfully accomplished (Taylor and Hall 1979).

Comment

While most of the arguments presented here have supported the notion of a sensitive period in human mother-infant attachment, it should be noted that this research is not without its critics. Some of the research which has been done has had methodological flaws, and many of the studies have not studied attachment effects past the neonatal period. Another criticism which faces bonding research is its emphasis on "strength" of attachment rather than quality of attachment. As Ainsworth (1973) has pointed out, a psychology of attachment will not proceed when based on a quantifiable "amount" of attachment. Lastly, much of the research on separation effects during the sensitive period has been done by Klaus and Kennell and their associates. Their arguments will be made more plausible when researchers in diverse surroundings are able to replicate their findings. In the words of Taylor and Hall (1979), "it is easy to become attached to bonding." (p. iv)

Prenatal Maternal Attachment

Maternal Attachment as an area of psychological study has yielded only limited findings. Most systematic research has dealt only with the post-partum period or the first few months after birth. By sins perhaps of omission, there has been a curious lack of research attention

given to the maternal attachment to the unborn child in pregnancy. This is not to say that pregnancy has been ignored in psychological research. A survey of the literature indicates great interest in the emotional aspects of pregnancy, particularly in how emotions figure in the outcome of pregnancy. Similarly, researchers have been interested in the role of emotions in wanted-unwanted pregnancies, and attitudes towards labor and delivery (Grimm and Venet 1966; Colman 1969; Sugarman 1977; Standley, Soule and Coupans 1979). In a review of the pregnancy literature over the last twenty years, it is noticeable that only a handful of authors have addressed the problem of prenatal maternal attachment. These accounts have rested largely within the context of psychoanalytic theory, derived primarily from case history studies and personal observations.

One of the first authors to address the mother's attachment to her unborn child was Deutsch (1945). Deutsch sought to interpret processes in pregnancy in psychodynamic terms. She felt that pregnancy was a crisis in personality development in need of resolution. Early in pregnancy, according to Deutsch, women show an increase in narcissism and a general turn inward though not directly toward the fetus. Upon quickening (felt fetal movement) a woman begins to direct her psychic energy towards the fetus and begins the task of owning the pregnancy with its threatening implications. Fetal movement is felt to be threatening because subconsciously it represents the idea of a moving phallus. Successful resolution of the crises in pregnancy serves also as resolution of penis envy. Deutsch believed that pregnancy was characterized by a general regression to the oral state resulting in an increased dependency on the part of the mother.

Bibring and colleagues (1959, 1960, 1961) worked within a similar framework, observing pregnancy as a crisis to be resolved. She again pointed to quickening as a critical point in the mother's attachment to her unborn child. She noted that at this point mothers often begin to fantasize about the forthcoming child. Bibring and colleagues (1960) and Klaus and Kennell (1975) have also remarked that after feeling fetal movement, even unwanted pregnancies may seem more acceptable. Bibring agrees with Deutsch in recognizing that a woman initially invests energy in herself and that it is only later that she is able to focus that energy in a relationship with the fetus. A woman must learn to individuate herself from close identification with the fetus in the last trimester of pregnancy, in a sort of "letting go" strategy.

Reva Rubin (1975) has attended particularly to attachment processes in pregnancy. Rubin proposes that a woman has four major tasks in attaching to her infant. These tasks are described as safe passage, acceptance of the child by significant others, binding-in, and giving of oneself.

Safe passage for both self and baby concerns the pregnant woman in different ways throughout pregnancy. In the first trimester there is mostly concern for the safety of self, but with the onset of fetal movement, the woman focuses her attention on protection of the unborn child. By the third trimester there is equal concern for self and child, and environmental dangers are overemphasized. According to Rubin, women tire of pregnancy in the eighth month and delivery is valued.

Concurrently, with safe passage a woman seeks to have "important others" value her child just as she does. This is particularly important early in pregnancy when the acceptance of the child by

others may be conditional upon certain characteristics of the child, such as gender. A pregnant woman in Rubin's view is very vulnerable to rejection.

"Binding in" refers to the task of a woman to bond herself to her unborn child, and this bond is characterized at birth by a sense of "we-ness." In the first trimester the binding-in is only to the pregnancy and not to the fetus. In the second trimester quickening brings on an intensified concentration on maternal tasks, assisted by elevated levels of progesterone and estrogen which according to Rubin contribute to a feeling of well-being. A woman's love for her child is at a high point and then wanes in the third trimester. This may be because while the mother loves the child, she is tired of pregnancy, and this weariness may attenuate the binding-in process.

Finally, a woman learns to give of herself. In the first trimester, there is a cost analysis of the pregnancy. There is an appraisal of what the child can give, compared to what he/she may take away. In the second trimester a pregnant woman focuses on the quality of that which she will receive. The third trimester is characterized by a renewed appraisal of whether or not she will be able to give her child that which she deems appropriate.

Bibring, Deutsch, and Rubin are not the only persons to have focused on the attachment process in pregnancy, but when prenatal maternal attachment is mentioned in the literature, the works of these women are mentioned almost exclusively. While their work may be applauded for the recognition of prenatal attachment, their propositions and descriptions are lacking in many respects. Coming from a psychoanalytic

bias, their writings are often an effort to fit pregnancy in that conceptual framework. Furthermore, their observations rest on a shaky data base, relying on a few case histories or personal opinion. It is a curious note that in a field so potentially important there have been almost no controlled investigations of the phenomena involved in prenatal maternal attachment.

The one observation that all observers seem to agree upon is the importance of quickening in prenatal maternal attachment. This seems to be when for many mothers the baby becomes a real entity. This "realization" of the fetus seems for some mothers to allow attachment to take place, and for others to greatly intensify processes already begun. Quickening provides the first tangible characteristics of infant specifically, and not just the pregnancy in general. It is a point at which the developing life is made real to the mother. An early, but testable proposition is that quickening in and of itself may not be the only attachment-producing phenomenon, but so will any situation which produces a tangible characteristic of the infant. Monitors which amplify fetal heart tones early in pregnancy or ultrasound "photographs" of the infant in utero may likewise produce the evidence which forms the groundwork of attachment. This point of realization has never been explored empirically.

Maternal attachment and all attachments are felt to be a cornerstone in the personal and emotional adjustment of any individual as well as playing a critical role in human species adaptation. However unfortunate, attachments are often severed by death, separation and even choice. When an enduring attachment has been formed and then

broken (especially by the finality of death) human beings universally grieve, although grief may take a variety of forms. Attachment and grief are inextricable from one another. In order to explore adequately the relationship between attachment and grief it is necessary now to turn to a discussion and review of the literature of grief.

GRIEF

To begin a discussion of grief is to enter a field encompassing the most painful of human experiences, and also the most inevitable. With the exception of the stillborn infant or the infant who dies shortly after birth, all persons experience grief even if it be only rudimentary responses to the absence of a caretaker. Unless one dies as a child or a young adult, it is likely that he or she will experience one or more major losses in his or her lifetime.

In the last 5 to 10 years, the subject of grief has received an overwhelming amount of attention in psychology and medicine. Nonetheless, there are still comparatively few systematic investigations in this field. The area of grief is prolific with popularized and uninformed accounts of how to deal with the grieving person, very often stemming from the "theories" of Elisabeth Kubler-Ross, a well-intentioned physician who unfortunately produced a conceptually impoverished framework of grief (Kubler-Ross 1969).

There have been a number of investigators who have slowly and systematically pieced together controlled observations of grief which have led to more useful conceptualizations, and these efforts are noticed most completely in the works of Bowlby (1979) and Parkes (1972). Drawing on their works and that of others, the present discussion will proceed in the following manner. Theories of grief will be discussed, as well as the processes, components and risks of grief. Atypical

patterns of grief and their determinants will also be examined along with methods of treatment. While "grief may have the various cause" it will be readily apparent that the concern in this paper is with bereavement via death of a loved one. Much of the research and theoretical focus has been on widows, so many of the studies considered deal with widowhood which to a large degree produces a prototypical picture of grief. In a discussion of grieving parents, this picture has been slightly modified to accommodate the loss of a different sort of relationship. A review of the literature on perinatal grief (especially grief over stillbirth) will ensue and this "type" of grief will be used as evidence for early maternal attachment.

Bereavement, Grief, and Mourning

Before beginning a discussion of the theories of grief, it is necessary to distinguish between 3 terms found often in the literature. These are bereavement, grief, and mourning. While some authors such as Bowlby (1979) argue that definitions of grief and mourning are artificial distinctions, a majority of authors use these terms specifically so it is appropriate to provide definitions. Bereavement refers to the actual state of loss; "bereave" comes from the Latin verb meaning to rob. Grief may be defined as the psychophysiological reaction to the loss, including the subjective understanding of the loss. Mourning refers to culturally determined behaviors and practices for the expression of grief (Dempsey 1975). Bowlby uses the term mourning as meaning the psychological expression and process of dealing with the loss so that most of his work includes the word "mourning" in place of grief (Bowlby

1979). It seems appropriate to use the term grief in this context in an effort to distinguish the universally experienced emotions and processes from cultural patterns of expression which may differ greatly from one another. As can be surmized, while all three of these states are highly associated, it is conceivable that a person might grieve and not mourn (e.g., the stoic who refuses all ceremony but is internally hurt by the loss) or to mourn but not grieve (e.g., the distant relative who goes through the motions of the funeral but whose emotional reaction is minor). Both grief and mourning occur in reaction to some type of bereavement, most typically death.

Theories

Only a few theorists have concerned themselves centrally with the issue of human grieving. The majority of these theorists have come from the psychoanalytic point of view. Lately the ethological/cognitive point of view has been formulated in some depth, and research on grief, as on attachment, has not only emanated from this position but has supported it consistently. There have been some behavioral accounts of grief in recent years, but outside the work of Seligman (1975) there have been no attempts to draw individual behavioristic models into a system. Behavioral theories will be mentioned only briefly; psychoanalytic accounts will receive somewhat more attention. The ethological/cognitive theories arising from such authors as Bowlby (1979), Parkes (1972), and Averill (1968) will be treated in some depth due to their salience in the research literature on grief.

Behavioral Models

Perhaps the most well known behavioral model is that of Seligman-- the "learned helplessness" model. According to Seligman, bereavement is a prototypical circumstance in which a person learns that his behaviors are ineffectual in bringing about the reinforcement he seeks. When a person learns that his actions are ineffectual, he or she may give up further efforts even when those future efforts would result in the desired outcome. At some point the "helpless" person may decrease his or her level of behavioral activity, attributing even successes to fate or chance. Seligman uses his model essentially to replace the concept of depression of which he believes grief is a special case (Seligman 1975).

While helplessness is certainly apparent in the grieving process, to hold it accountable for the whole process has been criticized. The meaning a person attributes to their grief would be described only in terms of behavioral contingencies although social learning theorists, of which Seligman is one, are also likely to take into account some cognitive processes as intervening variables. This model leads to a view of grief in terms of behaviors which can be unlearned. If the biological and cognitive processes of grief are ignored in favor of behaviors alone, treatments can be composed which would be not only ineffectual but detrimental, especially in terms of internal processes.

The idea of behavior versus process lies not only with Seligman's theory. Ramsay (1977) has proposed a model in which grief is viewed as a brand of depression resulting from insufficient reinforcement. The grieving person is on an extinction schedule. Ramsay's model draws the

conclusion that the development of pathological grieving is analogous to, if not the same as the development of phobias, and their treatment is virtually the same. Ramsay proposes his model with intentional disregard for research and theorizing in nonbehavioral approaches to grief. The view of grief as resulting from the removal of positive reinforcement is incomplete, failing to describe why the yearning and pain of grief while becoming infrequent may last a lifetime in normal grieving.

Bugen (1977) has devised a behavioral model for the prediction of the magnitude of grief. Bugen states that there are only two factors which are necessary to take into account, centrality and preventability. Centrality refers to whether the deceased play a central or peripheral role in the life of the survivor. Preventability refers to whether or not the death is perceived to have been preventable. According to Bugen the most intense grief will result when a central figure dies a death which might have been prevented.

Psychoanalytic Theories

Psychoanalysts have not been so eager to opt for easy answers although they are as likely as behavioral theorists to present their theories more in an effort to promulgate a model than to investigate the phenomena of grief as they are observed. Valuable observations have been made by several persons in this tradition especially Freud (1917), Abraham and Klein (in Pollock 1961), and Siggins (1966).

Freud (1917), in his classic work "Mourning and Melancholia," laid the groundwork for psychoanalytic considerations of grief. Freud

saw the grieving process as a defensive one. According to Freud, when a cathected object is lost, the reality of the situation demands that the ego take notice. When the ego takes notice of the loss, an intensely painful process is set in motion. In order that a person not be overwhelmed with pain, defense mechanisms such as denial come into play. The ego denies the reality of the death and may act as though it has not occurred in order to escape the severe pain of grief. Eventually however, reality again dictates and pangs of grief return. This piecemeal progression of accepting and "mourning" the loss accounts for the long duration of grief and the searching behavior which often appears. "Grief work" as coined by Freud, sees the ego hypercathecting to the artificially-prolonged object in order to eventually decathect that lost object and invest that libidinal energy in new relationships (Freud 1917).

The pain of grief perplexed Freud; it was not immediately evident to him why the process should occur in so great an intensity, greater even than that of separation anxiety. Says Freud,

. . . why it is that this detachment of libido from its object should be such a painful process is a mystery to us We only see that libido clings to its objects and will not renounce those that are lost even when a substitute lies ready at hand. Such then is mourning. (Freud 1916, page 307)

Pollock (1961) notes that Freud's difficulty in addressing the grieving process may easily have arisen out of Freud's own grieving experiences including the loss of his father, the loss of Jung's support and the traumatic loss of a young granddaughter. The key recognition in Freud's position is that one never completely gets over a loss. In a letter which Freud wrote to the psychiatrist Binswanger, he states,

Although we know that after such a loss the acute state of mourning will subside, we also know we shall remain inconsolable and will never find a substitute. No matter what may fill the gap, even if it be filled completely, it nevertheless remains something else. (Freud 1960, Letter 239)

Abraham, working in the same tradition, went a step further in suggesting that not only did a person work to decathect psychic energy from the loved object but he also worked to introject aspects of the object into himself. According to Abraham, a person first introjects the lost object and then works to decathect the external object; the ego being willing since the ego then carries a replica of the object inside. If the former relationship with the lost person is ambivalent, that ambivalence will be introjected with severe consequences since the ambivalence will be turned toward the self, resulting in events ranging from guilt to self-destruction and other forms of pathological mourning. The writings of Fenichel confirm these observations and add that in normal persons, decathexis is easier with introjected rather than external objects.

While few psychoanalytic models differ, from this basic model, the models of Klein and Bibring center on other salient aspects of grief. To Klein, grief is a process of regression to an earlier state, a throwback to the weaning process. Bibring sees helplessness and the potential for a loss of self-esteem as the primary issue in grieving (Siggins 1966). All psychoanalytic theories, though, have this in common: that grief is the process of withdrawing the energy from a lost relationship and establishing that energy elsewhere. This economic system of psychic energy is seen as an adaptive process.

Ethological/Cognitive Model: The Bowlby-Parkes Formulations

The psychoanalysts interpreted grief as a process by which a person withdraws energy from a lost object in order to maintain self-preservation. Bowlby and Parkes have concluded that the face of the grieving process is not inherently adaptive for the individual in a narcissistic attempt to identify with the living. Bowlby instead sees the grieving process as an outgrowth of an adaptive system which promotes attachment and proximity to the attachment object; grief itself is not seen as a withdrawal of energy but instead as an expression or process which usually brings a separated individual back into contact with his group (Bowlby 1979).

There are two aspects of this theory of grief, apparent from its title, those being ethological observations and observations stemming from developments in cognitive psychology. Since both aspects are vital to this theory, each shall be discussed in turn.

Ethological aspects of grief

The ethological bases for grief rest on the assumptions of Darwin, that behaviors which most enhance the survival of the species will be selected out over a long period of evolution. Human beings are a social species and conditions which facilitate group cohesion will be promoted. Attachment and proximity-seeking and maintaining behaviors have this function. Grief in the ethological sense has as its base separation anxiety. When an individual becomes separated from his attachment figure or group, the behaviors and emotional pain brought on by this separation serve the purpose of bringing the separated person back in contact with the lost figures. Death, the permanent loss of an attachment

figure, is statistically rare in the scheme of separations; and behaviors such as weeping, searching, protesting, and so on which normally have the function of reuniting the separated person with the group, occur in response to the death even though they are clearly nonadaptive in face of the permanence of the loss (Bowlby 1961, 1979). Says Parkes,

Only when searching is useless and reunion impossible as in the statistically infrequent event of loss by death does the involuntary expression of grief lose its utility. (Parkes 1972, page 42)

Grieving occurs, then, not to decahctect an object, but instead as an anachronistic system which cannot accomplish its goal.

The ethological position receives support in studies of animal "grief." One would expect that if the ethological position is correct one would find grief-like behaviors in social animals high on the phylogenetic scale. This has been observed. Bowlby (1961, 1979), Pollock (1961) and Averill (1968) have reported on a variety of observations of grief in animals, including geese, dogs, monkeys and apes. Exemplifying these reactions in the case of Washoe, the chimp raised with a human family and taught sign language as communication. At one point Washoe's infant became ill and required hospitalization. Each day when her caretaker came, Washoe signed questions regarding her infant's welfare to which the appropriate reply was made. After a time the infant died and when thus informed Washoe retreated to a corner refusing to move, eat or communicate for days (Omni 1979). Similar patterns have been noted in monkeys by all of the above authors. Averill (1968) notes that grief may have an adaptive function not to the individual as Pollock suggests but to the group. A bereaved individual may greatly decrease reproductive activity

in bereavement which in traditional ethological thought would have resulted in the gradual decrease in these behaviors in human evolution. Averill points out, however, that the behavior of the grief-stricken tends to elicit the caretaking and proximity of others in the group. The individual painfulness at separation leads each individual to favor the group. Averill argues that natural selection promotes survival of the species not necessarily of any one individual, and therefore the bereaved, even if failing to reproduce, contribute to the social cohesion of the group.

Cognitive aspects of grief

While cognitive issues have always been addressed in Bowlby and Parkes' theory, recently Bowlby (1979) has elaborated an information processing approach to grief and the defensive processes therein. Bowlby does not reject the psychoanalytic concept of defense but feels that current cognitive theory better accounts for the observed phenomena.

Bowlby rests his approach to defense on information-processing research. Bowlby notes that all persons initially process a great deal more information than they retain. Only a small amount of this information proceeds past the sensory level to higher order processing, and this selective exclusion has adaptive value, protecting a person's capacity to attend to stimuli from being overwhelmed and continually distracted. Defensive exclusion is a type of exclusion of events which prevents certain types of information from being processed, permanently in some cases. Even though a person may not initially attend to a piece of incoming information, that information may still influence his behavior and mood without his awareness (as studies on dichotic listening

have demonstrated). Three things can happen to the incoming stimulus. It can be excluded entirely, it can be kept momentarily in a "buffer store" just long enough to affect judgement and mood, or it can enter into complex higher-order processing, usually associated with consciousness. This perceptual defense system seems especially to exclude information which in the past has been associated with painful states. Defensive exclusion can readily explain the "defense mechanisms" of psychoanalysis in a cognitive view. For example "repression" results from a consistent pattern of exclusion of information which would serve as cues for a particular behavioral system and the thoughts and feelings associated with it would remain totally out of the realm of awareness. Most often though, the defensive exclusion is not complete, resulting in "repressed" phenomena seeping through to consciousness. Defensive exclusion can act in other ways such as diverting attention from one line of stimuli to another, disconnecting or redirecting certain cognitive events (as in "displacement"), "purposeful" misinterpretation of a stimuli (such as in phobias--I'm not afraid to leave my family, I'm afraid of wideopen spaces and so on). What seems to be critical in the determination of "pathology" is how persistently certain cues are excluded from awareness. When a person totally excludes information necessary for the function of a cognitive-behavioral sequence (such as in the case where the death of a loved one is so totally denied that no grief takes place) the effects can be devastating. A system which is constantly expending resources in dysfunctional exclusion processes necessarily expends adaptive capacities in favor of the less adaptive ones. Bowlby says,

There can be little doubt that those persons in whom defensive exclusion plays a prominent part are handicapped in their dealings with other human beings when compared to those in whom it only plays a minor part. (Bowlby 1979, page 72)

When, as in the case of grief we have to dismantle an entire system (relationship) to which we are accustomed, the process is not only difficult and slow, but painful as well. In this manner, defensive exclusion allows for "bouts" with the painful tasks and moratoria from the pain, a pattern which can well account for the initial numbness and intermittent pangs of grief (Bowlby 1979).

Bowlby's arguments for cognitive and biological bases of grief fit well with the observed data. Parkes (1972) has proposed that the grieving individual is additionally in a state of alarm which was appropriate and adaptive in evolutionary history. The world in grief is a dangerous place and the physiological arousal of alarm fits well also with the emotional observations of initial grief.

The one point which this theory lacks is the transition from the building blocks of the theory (behavioral systems, defensive exclusion, etc.) to the meaning of grief to the individual. This is not to say that Bowlby and Parkes do not address the question of a loss of meaning in grief. Both authors have expounded with great sensitivity on the personal meanings of grief in their research and case examples. This theory does provide a suitable base of understanding into which the "meaning of human grief" might fit. An attempt to integrate this meaningfulness into a less mechanistic model would in the end provide a complete understanding of human grief allowing all disciplines to contribute to a comprehensive goal.

Grief: Its Description, Processes, and Components

In 1944 Lindemann published his now classic paper "Symptomatology and Management of Acute Grief." Since his original propositions based on the observation of grief in over 100 survivors of the Coconut Grove Fire who had lost a relative in that disaster, there have been a number of attempts to systematically describe and record the components of grief. Most of these studies have focused on the acute phase of grief--within the first few months of the loss, a time when the effects are most observable. Most researchers now agree that grief is best viewed as a process not a state (Parkes 1970, 1972; Glick, Weiss and Parkes 1974; Bowlby 1979). For this reason, it is best to consider "symptomatology"--both physiological and psychological--within the context of the phases or processes of grief which persons encounter.

Grief to most workers is viewed as a disease process based on the arguments of Engel (1961). Engel likens grief to any "natural or normal response to trauma" as in the case of a wound. According to Engel the course of the healing process, in the wound as well as in grief, may have a normal progression ending in a healed state, or it may have a bad outcome. Pathological grief in this manner of speaking may then be analogous to a septic wound. Both Bowlby (1979) and Parkes (1972) have accepted this analogy. It is not the intention in this paper to belabor this point; it will suffice to say that arguments of this nature can be countered. What is important to realize is that grief is seen as a disease by most writers in the area.

Processes or Phases in Grief

Several long term studies of widows have been conducted. Fewer studies have been conducted with parents of deceased children. A diverse group of researchers have arrived at observations of the phases an adult may go through in grieving a loved one. Studies of widows are believed to be prototypical of the adult grieving process. Bowlby (1979) and Parkes (1972) have outlined the following phases to account for the progression.

Shock and numbness

When a death occurs, especially if it is without warning, a common reaction is one of numbness. Parkes (1970) in a longitudinal study of 22 widows found that 16 out of 22 widows reported a feeling of numbness or shock. An example of this reaction is "I just couldn't believe it; it didn't seem real." Glick, Weiss and Parkes (1974) described similar reactions. Bowlby (1979) feels that the reality of the tragedy is impossible to take in all at once. Shock reactions may last only a few minutes or hours or they may last as long as a week. Two of the 22 London widows observed by Parkes (1970) reported a period of shock lasting as long as a month before the pangs of grief set in. In another study of 68 widows and widowers, 2/3 reported an initial sense of numbness (Parkes 1975). When the painfulness of grief does set in, whether a few minutes or weeks into bereavement, a further process becomes salient--the process or phase of searching and yearning.

Searching and yearning

Of all the phases of the grieving process, perhaps the most obvious is the phase which involves searching and yearning for the lost

object. This phase involves the most acutely observable behaviors and affects. Many researchers when looking at grief are looking at this phase which begins simultaneously with the phase of numbing but may be characterized by differing initial intensity which develops into the overwhelming affect so easily recognizable. Most of the persons in Lindemann's study were probably most involved in this process, as were those of Clayton, Desmarais and Winokur (1968).

The symptoms indicative of this phase are diversified. They include sighing respiration, loss of appetite and resulting loss of weight, sleep difficulties, digestive disturbances, heart palpitations, headaches, and muscular aches. Psychological symptoms include irritability (restless anxiety), lack of concentration, guilt, rumination of events surrounding and leading to the loss, preoccupation with the image and thoughts of the deceased, overwhelming somatic and subjective distress characterized as despair, depersonalization/derealization, disturbance in time sense and any number of other reactions (Lindemann 1944; Clayton et al. 1968; Parkes 1970, 1972; Glick, Weiss and Parkes 1974; Bowlby 1979). The best way to conceive of grief is probably not in terms of the components mentioned above but instead in terms of the cognitive/affective processes at play, for while an individual may or may not experience each of the above symptoms, he is likely to be characterized by repeated attempts to yearn for, search for and recover his lost object. Bowlby (1979) and Parkes (1972) characterize this process by the following:

1. restless activity and scanning
2. preoccupation with thought of the deceased

3. developing a perceptual set for the deceased so that all perceptions related to the deceased are closely attended to and other stimuli are attenuated
4. attending closely to places which were associated with finding the deceased and
5. calling for the lost person.

Yearning for the deceased person involves great pain. A person may or may not realize his tendency to search for the person but whether he realizes it or not, every effort and thought tend to be drawn toward the process of recovery. This is not to say that the bereaved denies the reality of the death, it is more of a temporary, involuntary disbelief in the situation.

The grieving person develops a perceptual set for the dead person seeking the deceased everywhere. As one woman remarked,

Everywhere I go I am searching for him. In crowds, in church, in the supermarket. I keep scanning the faces. People must think I'm odd. (Parkes 1972, page 47)

This perceptual set to find and recover the object occasionally leads to misperceptions in which the deceased is momentarily found. This momentary recovery of the object results in a temporary mitigation of the intense pain of fruitless yearning and searching. A widow may report hearing the door creak at 5:00 and know it is her deceased husband returning from work (Parkes 1972). A mother of a stillborn infant may report hearing her baby cry when alone in the house or occasionally still feeling fetal movement (Davidson 1979). Parkes (1972) reports persons feeling drawn to the graves of the deceased, and any objects which link themselves to memories of the deceased.

Rees (1971) in a study of 293 widows and widowers found that close to half of the bereaved persons he interviewed had either "seen" the deceased spouse or had a sense of the person's presence. Yamamoto, Okonogi, Iwasaki, and Yoshimure (1969) found 90% of Japanese widows interviewed reported hallucinations of the deceased especially in the first few months of bereavement. This higher percentage among Japanese may be accounted for culturally; the Japanese value the presence of ancestors. Marris (1958) has also noted reports of presence of the deceased in 50% of the London widows interviewed, a finding incidental to his study on the socioeconomic status of the widows. This pre-disposition to "see" the deceased may arise from the high motivation to find the person in one's perceptions even if that person no longer exists.

The searching and yearning of this phase tends to come in waves lasting from approximately 20 minutes to an hour (Lindemann 1944; Parkes 1972). Parkes notes that an individual could not withstand the constant and severe pain of "pining" for the deceased, and therefore must temporarily withdraw from the task of searching. This is accomplished in "selective forgetting" and the withdrawal to numbness. This process of searching and not finding, withdrawing and then searching again, is seen by Parkes as a process of "realization"--it is only little by little that a person comes to accept the reality and permanence of the loss. When the loss becomes more and more "real" to the person and he or she recognizes the irreversible nature of the change, the restless activity of searching and pining begins gradually to drop out and be replaced by a period of disorganization. The duration and intensity

of the searching phase differs from individual to individual, but the presence of yearning and searching, accompanied by the preoccupation with thoughts of the deceased, is pathognomic to this acute phase of grief (Bowlby 1979).

One additional characteristic of this phase needs to be examined and that is anger. Bowlby (1961, 1979), and Parkes (1970, 1972) have remarked on the important role of anger in this early stage. The anger in this phase is intermittent and may be directed against the deceased, others, "fate," God, or the self, often resulting in guilt. When the death is sudden and without reason there is an intense anger towards those held responsible for the death, be they God, doctors or the deceased themselves. There is often a reproach toward the dead exemplified by the statement, "Why did you leave me?" A death shakes a person's sense of justice and security, and makes the world a dangerous place to live. The tendency to place blame is believed by Parkes (1972) to bring the world into an understandable state--to produce a reason for the death. When the reproach is directed against the self, guilt may result. While a tolerable level of guilt is normal to grief, exaggerated guilt may lead to severe problems (Bowlby 1965). What is important to recognize is that anger is an appropriate component of grief even if it is misdirected and seemingly irrational.

Disorganization/despair

Searching and yearning which are initially done compulsively eventually, drop out and recur only in association with persons, places, things and events associated with the deceased. Cavenar, Spaulding and Hammett (1976) have noted that the anniversary of a

death or other important events associated with the deceased may predispose an individual towards a recurrence of intense distress and even depressive or psychotic reactions. Glick et al. (1974) and others have taken precautions in designing longitudinal studies of grief to avoid interviews around the anniversary of the death. Besides these event-related episodes of "acute" grieving recurrences, however, the picture of the grieving process changes from one of severe and painful searching and yearning to a more general depression-like orientation occurring typically 6 months to a year or more after the death. A person who has been able to allow for his own inconsistencies and anger in the previous phase comes eventually to realize the redundancy of his behaviors and when realizing that nothing can be recovered he comes to a position of apathy and depression. C. S. Lewis in an exploration of his own grief over the loss of his wife (H.) wrote,

Thought after thought, feeling after feeling, action after action, had H. for their object. Now their target is gone. I keep on through habit, fitting an arrow to the string; then I remember and have to lay the bow down. So many roads lead through to H. I set out on one of them. But now there's an impassable frontier-post across it. So many roads once; now so many culs-de-sac. (Lewis 1961, page 59)

Once depressed, a person must begin to redefine both him or herself and his or her life. This process results in reports of loneliness, especially at night and has been found in all the studies mentioned in this paper (Marris 1958; Clayton et al. 1968; Parkes 1970; Glick et al. 1974). This loneliness may be perpetuated especially in widows where there is a reluctance to reestablish social contacts out of loyalty to the dead husband (Bowlby 1979). Eventually, however, most bereaved

persons do begin to rebuild their lives although this is an arduous process.

Reorganization

When a person begins to rebuild and reorganize his life depends a great deal on the personality of the persons involved and their relationship, and other factors to be considered later such as age, socioeconomic status and so on. The timing of this phase for most seems to take hold at approximately 18 months to 2 years after the death. Efforts to reorganize become apparent before this time but as with the preceding phases, it is at the above mentioned time that reorganization becomes fully apparent. Glick et al. (1974) and Parkes (1970, 1972) have noted that certain events in the bereaved person's life may facilitate this rebuilding. Many of the London and Boston widows in these studies mentioned "marker events" such as redecorating the house or cleaning out a spouse's closet, as significant events. Whatever the facilitating event may be, it seems that reorganization eventually sees the return of physical appetites, reestablishment of social patterns, and judgements unaffected by the loss. The most important thing to keep in mind is that grief is resolved only insofar as it no longer affects the everyday life of the bereaved, and a tie is never completely broken and grieving may recur at anniversaries and future losses and reminders. It is not uncommon nor even inappropriate for a parent bereaved of a child to respond with sadness to any reference to that child. One learns eventually to live with the reality of the loss; it is unlikely one learns not to love the deceased.

Patterns of Grief

While the above described "stages" of grief are nearly universal, the timing and duration may vary among individuals. Lindemann (1944), Parkes (1965) and Averill (1968) have described six patterns which grief may follow. Each will be briefly described.

1. Normal grief--normal grief follows the 4-phase pattern of processes described previously. Normal grief most often has a favorable outcome, clearly discernable 2 years after the loss.
2. Chronic or exaggerated grief--in chronic grief persons seem to get "stuck" in the phase of yearning and searching, less often in despair. The outcome is usually not favorable and often manifests itself in the intensification of one symptom such as guilt.
3. Abbreviated grief--a sincere but short grief reaction which may result from a low degree of attachment or an immediate replacement of the deceased's role.
4. Inhibited grief--a pattern in which any given symptom of grieving is not exhibited but are instead "repressed."
Inhibited grief is often characterized by displaced symptoms such as illness. Children often show this pattern of grief in which sorrow is often replaced with aggressive acting-out behaviors.
5. Anticipatory grief--anticipatory grief described in some detail by Fulton and Fulton (1974). It is a form of grieving which occurs before an actual death most often in the instance of a

prolonged illness. Anticipatory grief is similar to normal grief in its symptoms and function, but when the death actually occurs there is a more subdued reaction than there is to sudden death. A discussion of the positive and negative aspects of anticipatory grief may be found in Fulton and Fulton (1974).

6. Delayed grief--delayed grief may be seen in a variety of ways. Most often a short delay is noticed, followed by either normal or exaggerated grief. In some cases the delay is so long in terms of years that the pattern has been termed "absence of grief" but a distorted form of grief--somatic or psychological, invariably follows, even if it does not become apparent until a future loss. Delayed grief can have severe consequences.

Epidemiological Studies of Grief: The Risks of a Broken Heart

Probably the most widely studied sub-area of grief has been the study of the risks of the mortality and morbidity in bereavement. There is so much evidence relating the stress of bereavement to risk factors that grief has often been called "the hidden illness."

Mortality of grief

Dempsey (1975) remarks that the data from the National Office of Vital Statistics in 1965 reports a higher mortality rate among white widowers between 25 and 34 than among their married counterparts. The death rate for these widowers is double that of their counterparts. Widows in this age group, although having fewer actual deaths, have

a 2 1/2 times greater risk of dying within the first year of bereavement under a variety of circumstances.

Other studies have confirmed this finding. Rees and Lutkins (1967) in a study of bereaved relatives in Llanidloes, Wales, over a period of six years, reported the following data. In the year following a death in the family, close relatives had a mortality rate of 5%, compared to .68% for a nonbereaved control group. If the survivor was a spouse, the results were even more dramatic--12% versus 1.2% mortality rate for married controls.

Parkes, Benjamin and Fitzgerald (1969) found an increased risk in widowers of 40% over controls. Many of the deaths in this study (3/4) were related to illness of the heart; and it was noted that the notion of a "broken heart" may not be completely the product of fantasy. In another vein, Bunch (1972) studying bereaved individuals who had lost a parent or spouse found a 5 times greater risk of death through suicide in these individuals than in a matched control group.

Only one study reviewed has not found this increased rate. Ward (1976) in a study of 87 widowers and 279 widows found none of the differences in mortality rates. Ward compared the number of actual deaths in her bereaved group not with actual deaths in a control group but with expected rates indicated by life tables for England and Wales in 1970 to 1972. The studies already mentioned have used matched and concurrently sampled control groups yielding a more efficient design and more reliable results.

Epstein, Weitz, Roback and McKees (1975) have described five hypotheses which have been used to account for the increased mortality rates in bereavement. These include the selection hypothesis, the

the homogamy hypothesis, the joint unfavorable environment hypothesis, the non-grief related behavior-change hypothesis, and the desolation effects hypothesis.

The selection hypothesis suggests that healthy widows remarry and so are not picked up by the studies. This criticism is easily laid aside when one considers the increased risk in the first 6 months when few are likely to remarry at all, and that after 2 years, the mortality risk returns to that of the general population. One would expect from this hypothesis that a lessening in risk would not occur.

The homogamy or mutual choice of high risk mates hypothesis suggests that the sick and dying seek out and marry the sick and dying. Again, if this hypothesis were used to account for increased mortality one would not expect to see a return to normal rates over a couple of years. Likewise the joint unfavorable environment hypothesis suggests that sharing the same unhealthy environment would predispose the increased risk factor, but one would have to ignore the rare occurrence of couples dying of the same illness.

The non-grief related behavior change hypothesis suggests that survivors show high risk behaviors not because they grieve but because they behave differently (such as not taking prescribed medicine, etc.). The desolation effects hypothesis suggests that the severe strain of the changes in bereavement, as well as of grief itself, produces such stress and hopelessness that physiological and situational changes detrimental to the person's health may occur. It is this final hypothesis which has been most firmly supported, especially by endocrine studies in bereavement. Hofer, Wolff, Friedman and Mason (1972) and Fredrick (1977)

have noted elevated or at least changed levels in 17-Hydroxy-corticosteroid excretion in bereaved parents and Fredrick relates this finding to the effect of stress on immunological factors predisposing persons to illness. No matter what the interpretation, there is little doubt that persons recently bereaved have significantly higher death rates than the population at large.

Morbidity and grief

A similar area of concern is grief's effects on the general health of individuals. Parkes (1964) using widows as their own controls noted a tripling in the number of physician visits in the first six months of bereavement as compared with the six months prior to the death. This may be for grief related symptoms, or seemingly non-grief related symptoms.

Lindemann (1944b) found that out of 45 patients who developed ulcerative colitis, 26 had experienced a death just prior to the onset of the illness. Onset or aggravation of a variety of illnesses in bereavement have been reviewed by Schmale (1958) and Dempsey (1975). These illnesses include cancer, asthma, tuberculosis, leukemia, arthritis and heart and circulatory problems.

Some of the problems with most of these studies is that they are done after the illness has been diagnosed and the researcher (usually an M.D.) is not blind to the hypothesis. Thus, while malignant cancer has often been linked with bereavement or "object loss" (Schmale 1958; LeShaun, in Dempsey 1975), these terms have been loosely defined as a "sense of hopelessness" or "utter sense of despair"--both of which are interpreted by the researchers involved.

Schmale, using his definition of object loss and resulting hopelessness, studied a group of women all suspected of having cervical cancer. Based on interviews with the women and their reported patterns of loss, Schmale predicted which cases would turn out malignant and which would turn out benign. Using the criteria of object loss, Schmale correctly predicted 75% of the outcomes. Other researchers studying leukemia and lymphoma in children have noted the separation, divorce or death of their parents shortly preceding the onset of their illness in as high as 80% of their cases (Dempsey 1975). Illnesses such as TB, asthma and arthritis which may have been arrested may be exacerbated in the early phases of bereavement (Parkes 1972).

It is not suggested that grief causes the above illnesses. Grief as an overwhelming stress may predispose physiological factors to "cause" an illness. Likewise, a person may see an already existing condition intensified. While it is relevant to point out that these studies place the bereaved at risk for both illness and death, it is also important to note that many bereaved persons will not suffer these consequences. The conditions affecting outcome of bereavement and the possible pathological responses to bereavement will be considered later in this paper.

Morbid Grief Reactions

The bereaved run the risk of increased ill health to be sure, but perhaps an even grater risk in this culture is the risk of psychological "illness" resulting from the grieving process. Parkes (1965a, 1965b) attempted to differentiate abnormal grief reactions from normal grief reactions by viewing the symptomatology of a group of

bereaved psychiatric patients. While he notices a preponderance of affective disorders in bereaved psychiatric patients, the differences between the control and study group were not as clear as one might think. Parkes concluded that it was not so much as one might think. Parkes concluded that it was not so much a matter of different symptoms as it was a matter of differences in intensity and duration. Abnormal grief reactions may be prolonged or exaggerated forms of normal grief.

Bowlby (1979) feels that abnormal grieving reactions, while presenting themselves in a great variety of ways, fall into two broad categories. These categories may be considered 1) chronic grieving or 2) prolonged absence of mourning. A third relatively rare category is that of mania or euphoria which replaces grief.

Both the chronic grieving process and prolonged absence of grief are felt by Bowlby to have certain features in common. Bowlby believes that both patterns involve defensive exclusion of information relating to the permanence of the loss. The chronic mourners become "fixated" in the phase of yearning and searching and are continually unable to lay aside the search. The anger inherent in this phase of grief may result in reproaches against the self or others in a manner so intensified as to lead in some cases to chronic depression and self destruction, and in other cases to paranoia-like patterns. In both chronic and absent grief, there is an absence of appropriate sorrow over the loss.

Chronic morbid grief reaction is most typically seen in the depressed individual who years after a death is still characterized by the painful yearning usually associated with the acute phase of grief.

Persons in this condition may also exhibit suicidal behavior (Bunch 1972) and other maladaptive patterns such as alcoholism. Any one component of grief may be magnified in a distorted fashion. It is not terribly unusual to see a person guilt-ridden years after a death. The hallmark of chronic grief is the degree to which it interferes with day to day functioning (Bowlby 1979).

A pattern which is more difficult to detect but which may have grave consequences is that of prolonged absence of conscious grieving. While some degree of numbing is perfectly normal within the first few hours or even weeks of bereavement, prospective studies such as that of Parkes (1975) have noted that longer delays are usually associated with detrimental outcomes of grief. While some may argue that no grief is occurring in these cases, there are usually tell-tale signs that the person is indeed affected by the loss; the exclusion of grief is almost never totally successful.

Prolonged absence of grief may take a variety of forms. A common reaction is when a person shows no grieving responses him/herself but becomes greatly concerned with the grief or distress of another. Greene (1958) notes several cases of persons who enter into an overprotective relationship in order to partially act out their own grief. Greene sees this form of behavior as a disguised cry for help.

Another more common pattern exhibited when grief is "absent" is the appearance of symptoms, illnesses or characteristics of the deceased. While to some degree identification symptoms are normal, exaggerated identification can result in an inability to accept the loss. Zisook and DeVaul (1977) have termed physical reactions

"grief-related facsimile illness" and they note that these reactions are either misdiagnosed as hysterical reactions or are treated inappropriately as medical illness. If diagnosed as distorted grief reactions, these "illnesses" have a good prognosis but if misdiagnosed they may last forever.

Gorer (1965) has noted a variation of unresolved grief which he termed "mummification"--a form of preserving relics associated with the deceased in a sense of great reverence. Queen Victoria, for years after the death of her husband, continued to have his clothes laid out and shaving water drawn daily. An even more unusual effort to maintain the deceased has been reported by Gardner and Pritchard (1977). Six cases were reported of individuals who kept the deceased's body, in some instances for years, taking great care to preserve it in any manner possible. When public authorities became aware of most of these cases and questioned those who kept the bodies, the "bereaved" individuals often reported no knowledge of the death. Four cases involved the death of a mother in which the survivor was an adult son; only one case involved an individual diagnosed as psychotic.

Eventually, all persons who do not grieve initially, break down--most often in a manner characterized as depression. Bowlby lists 4 events likely to precipitate full blown responses in individuals who have previously avoided grieving. These include:

- the anniversary of the death
- another loss which may appear minor
- an event such as reaching the age of a parent who died
- and in the case of compulsive care for a vicarious object, a loss which the object experiences.

In all cases of morbid reactions, some form of re-grief therapy proves to be most effective. While a variety of treatments have been proposed (e.g., Polak, Williams and Vollman 1972; Flesch 1975; Ramsay 1977; Valkan 1975) the paradigm for treatment is one in which the grieving individual is led through his grief as though his loss had just occurred, supported by the therapist. Some treatments arising particularly in behavioral approaches use implosive or flooding techniques in which grief is treated as a phobia. These latter approaches are based on knowledge of behavioral techniques to the exclusion of knowledge of the literature on grief.

Conditions Affecting the Outcome of Grief

What has been discussed is how the process of grief may take shape. The picture is a complex one though and researchers are just beginning to tease apart the conditions and predictors of outcome. Bowlby (1979) has reviewed a number of variables which are thought most likely to predict outcome. These include:

1. the identity and role of the deceased
2. age and sex of the bereaved
3. causes and circumstances of loss
4. psychosocial circumstances at the time of death and after
5. the personality of the bereaved with emphasis on his/her ability to form and maintain attachments and deal with loss.

Each will be discussed in turn.

The most obvious condition which predisposes intense grief is the centrality of the lost relationship. Parkes (1972), Bowlby (1979)

and others (e.g., Bugen 1977) have noted that almost all research and reports regarding disordered variants of grief have arisen from the loss of a parent, spouse or child, and less often, a grandparent or sibling. While the nature of the relationship which lends itself to disordered mourning may not be clear, one observation is consistently made. Although any bereavement may lead to pathological responses, most observers of grief have noted the particularly severe and devastating reaction to the loss of a child. Gorer (1965), Lindemann (1944), Parkes (1972), Bowlby (1979) and others have all noted the most severe reactions of grieving in parents, particularly mothers who lose young children. The ambivalence or security of the relationship with the deceased seems likewise to have an effect, with the poorer outcomes attributed to relationships with higher ambivalence (Vachon 1976; Bowlby 1979).

Age, sex, and socioeconomic status may have an effect on the outcome of bereavement. Age of the bereaved is not a clear cut issue. In several early studies young bereaved widows were found to be at high risk for grief-related psychiatric problems. However, more recent studies have found no age difference in terms of poor outcomes. The very young and very old are often excluded from general studies of bereavement because they are thought to be prone to inhibited forms of grief (Parkes 1972). Ball (1977) has painted a more complex picture. It seems not that age per se affects the outcome of bereavement so much as the interaction between age and the mode of death. Anticipatory grief had a mitigating effect on grief in younger widows but no differential effect was observed in older widows. Young sudden-death

widows were rated most highly on an overall grief reaction measure, on severity of symptoms, and on total number of symptoms. While any age group may be characterized by poor outcome, it appears that the general picture is one of high risk factors in young (18 to 46) bereaved persons (Jacobs and Ostfeld 1977; Ball 1977). Age as a factor warrants further study.

There is a debate as to whether gender in and of itself predisposes poor outcome. Jacobs and Ostfeld (1977), in a review of the literature on grief, have noted that men are at higher risk for poor outcome than women at all ages with particularly poor outcomes for elderly widowers. Vachon (1976) in a similar review corroborates this conclusion. Bowlby (1979) and Parkes (1975), however, find no conclusive evidence that suggests that one sex is more predisposed to poor outcomes of grief. Most studies have not focused on the grief of males per se, and widowers and bereaved fathers in general represent very few of the grieving persons studied. Bowlby points out that the clinical picture and timing of poor outcomes may differ between the sexes, with males presenting difficulties as late as 2 to 4 years after the loss.

Socioeconomic status is a mixed picture as well. Parkes (1975) reports low socioeconomic status widows have greater difficulties adjusting to major loss, but others have noted either no differences or greater difficulties among professional level persons (Vachon 1976). All demographic variables which affect bereavement need further study.

Causes and circumstances surrounding the death may have great influence on the outcome of grief although exactly how that influence is exerted is debated. As Ball (1977) has noted, sudden death may add

to the detrimental outcome of the grief of young widows. Glick et al. (1974) and a variety of studies reviewed by Bowlby (1979) have corroborated the evidence that the sudden death of a loved one has particularly devastating effects. One of the most explicit cases of the effects of sudden death has been noted in the study of Harvard widows by Glick et al. (1974). They found that 2 to 3 years after bereavement none of the 22 widows who had lost a husband to sudden death had any signs of remarrying. Thirteen of the 20 widows who had had some warning, were either remarried or had made plans to do so. According to Glick et al., it is probable that the suddenness of death has more elements of catastrophe, and those widows who were thus bereaved developed a fear of dealing with similar situations. Bowlby (1979) likewise points out that especially in young age groups, the deceased spouse was likely to have been young as well and this factor characterizes the death as particularly untimely and unjust. Feelings of guilt, anger, and blame may intensify and may in turn predispose pathological reactions. Parkes (1972) has noted that in sudden death, the life-circumstances of the survivor are greatly shaken, and these widows find themselves with financial and social upheaval to contend with as well as with their grief. Where there is forewarning, preplanning may take place, and those widows need content only with their grief.

Other circumstances may also predispose poor consequences in grief. These include concurrent stressful life events (Vachon 1976), how the bereaved is informed of the death, what kind of interaction had occurred between the bereaved and the deceased, and where blame for the death is directed (Bowlby 1979). Since research studies in these areas

are few and conjecture is large, these will not be considered further.

The two main categories of psychosocial elements exist which may affect bereavement: living arrangements and beliefs and cultural practices. Living alone or living with others is thought to influence the course of normal bereavement. Bowlby (1979) has concluded that the social isolation of living alone may predispose depressive symptoms. Clayton (1975) has noted that in the first year of bereavement, there are no differences between bereaved persons living alone or with others in reports of depression. There is a highly significant difference between the bereaved and matched control groups in reports of depression. She concludes that it is the bereavement itself rather than the effects of living alone which causes depressive symptoms. Living alone may contribute to increased reports of aspects of depression. Living with others, however, can have detrimental effects particularly if the bereaved is responsible for the care of those with whom he/she lives (Bowlby 1979).

Probably one of the most important variables affecting grief is the cultural rituals surrounding grief. Fulton (1974) noted that little by little cultural rituals surrounding death have become less and less evident in the western tradition. These cultural practices which include funerals, mourning practices (e.g., dress, behavior), etc. have become poorly defined; it is not infrequent when a death occurs to hear persons react by saying "I didn't know what to say or do" or reacting by trying to hide all evidence of grief (Parkes 1972). This lack of tradition may undermine what little structure is available to the bereaved and is

believed to risk poor outcomes. The relation of cultural practices to individual processes of grief needs to be further explored.

Lastly, the personality of the bereaved person will affect how he grieves and what outcome follows. Vachon (1976) has stated that previous psychiatric history may precede detrimental grieving processes. Clayton (1968) has observed that the best predictor of a depressive reaction at one year is severe depression at one month. Parkes (1975) has found that severe self-reproach, anger, depression and yearning which will not subside even momentarily, best predicts maladaptive patterns of grief. Observations of personality styles suggest that persons who are prone to be defensively independent, have a high degree of defensive exclusion (or unwillingness to deal with stress honestly) or have a high level of death threat may be prone to poor outcomes. The work (Bowlby 1979) relating grieving styles to personality styles has been scant. Further research is necessary to view the interactions of personality variables with the patterns of grief.

The processes, types, outcomes and conditions of grief have now been described. It is now necessary to turn to the discussion of a particular kind of grief, the grief in reaction to the perinatal death, especially stillbirths. Since it is apparent that grief occurs when an attachment has been severed, especially through death, the issue of grieving the loss of a stillbirth becomes critical when outlining the earliest maternal "attachment" or love for a child. This area has not been widely noted or researched but understanding grief at stillbirth and fetal death may lead to discovery of emotional and

psychological factors surrounding both the birth and death of a child. Before tying together the issues in this paper, the literature on grief at the death of a stillborn will be reviewed.

THE FORGOTTEN GRIEF: THE EXPERIENCE OF PARENTS OF STILLBORN INFANTS

The tragedy of stillbirth is a quiet tragedy. While each year thousands of families in America experience the loss of an infant at birth, these deaths, and the resultant grief, are seldom acknowledged in our culture. When acknowledged, the stillbirth is not regarded with the same respect as other deaths. The parent's grief and mourning are often felt to be "abnormal" since others assume that no attachment existed between the parent and child before birth. A growing body of literature, however, has now documented the existence of grieving processes in response to stillbirth. While very little research has been done with these grieving parents, there can be no doubt that the normal and appropriate response to a stillborn infant is one of intense grief and mourning, just as with the death of any loved person.

Recognizing that grieving occurs in parents of stillborn infants, attention may be turned to the aspects of grief, both similar to other bereavements and particular to perinatal loss. This discussion focuses on processes in perinatal bereavement, pathological variants of perinatal grief, and the conditions and interventions affecting the outcome of grief at stillbirth. Suggestions are made for further research.

Description and Processes

When referring to stillbirth, two types of events may be delineated. The first type of event, occurring infrequently, is that of fetal death

in utero (FDIU). In this case, the baby's death is diagnosed days or weeks before delivery. In this case, where the mother has forewarning of her child's stillbirth, one might classify the resultant grief as anticipatory. Grubb (1976a, 1976b), however, has noted that in cases of FDIU, even though a mother may verbalize her knowledge of the baby's death, she is heavily involved in a process of denial, holding on to the most remote hope that her infant is alive. This observation has been corroborated by the authors and others (Kish 1978). The second and most common type of stillbirth is when there is no prior knowledge of the death, i.e., the baby's death is diagnosed during labor and delivery. This event can be characterized as a sudden death. While it is important to recognize the differences in these events medically, the grieving processes set in motion are the same as they both result from the simultaneous birth and death of the child.

Phases of Grief

Bowlby (1979) and Parkes (1972) have outlined four processes which occur in normal grieving. These are: 1) shock and numbness, in which there is a lack of overt reaction; 2) searching and yearning, in which a person physically and perceptually searches for the lost person either consciously or "unconsciously" in a painful but futile attempt to recover the lost person; 3) disorganization, characterized by a general depression with increased affirmation of the loss; and 4) reorientation, in which a bereaved person begins to restructure his life and return to a level of functioning at least equal to the preloss period. While each process best characterizes the grieving person at a particular time, all may be present simultaneously.

It is important to remember that grief is a very individual experience. While it is proposed that the above-mentioned processes best describe human grief, it should also be stressed that each of the processes of mourning will be experienced differently by different persons. Still, the Bowlby-Parkes formulations serve as a useful framework for understanding parental grief at stillbirth.

Shock and Numbness

Upon the death of the child, most mothers experience at least some degree of disbelief. There is a tendency to believe that somehow a mistake has been made and the infant is still revivable (Cullberg 1971; Taylor and Hall 1977; Scupholme 1978). This phase is usually brief whereupon the intense pain of yearning and searching begins.

Yearning and Searching

When most researchers discuss acute grief, they are focusing on the painful, fruitless searching and yearning for the dead person. As Klaus and Kennell (1976), Jolly (1976), and Davidson (1977, 1979) have noted, the yearning and searching is compounded in stillbirth mothers by the nature of the situation. The expectations of mothers and fathers are of an idealized infant, created from their hopes and dreams. While all parents suffer some discrepancy between the ideal infant and their real infant, these discrepancies are usually not too difficult to reconcile in a normal outcome. Stillbirth parents, however, suffer the worst discrepancy--not only is their real infant obviously different from their ideal infant, but death, one of life's greatest sorrows has occurred at precisely the moment in which the opposite, joy at birth,

was expected. Furthermore, pregnancy as a "life crisis" (Bibring et al. 1961) takes place over a relatively short time thereby focusing the attention of family and friends on the event of the birth. The sudden horror of the death is felt by all who attend it. At the time when a mother may most want to hold her infant, there is no infant to hold, and yearning of grief is painfully compounded. The untimeliness and sense of utter injustice are as strong as with neonatal death.

All the signs and symptoms of this phase of grief described in the literature on adult mourning have been noted in the stillbirth mother. These include preoccupation with the image of thoughts of the deceased, anger and reproach, guilt, despair, sleep disorders, appetite disorders, "pangs of grief," somatic distress, depressions, hallucinations and illusions of the presence of the deceased (Kennell, Slyter and Klaus 1970; Wolff, Nielson and Schiller 1970; Cullberg 1971; Klaus Kennell 1976; Davidson 1977, 1979; Kennell and Trause 1978).

In the months that follow the baby's death, certain aspects of the yearning-searching phase may be so pronounced as to cause problems in later adjustment. Anger, reproach, and guilt play a particular role in this type of loss. Wolff et al. (1970) noted that of 50 mothers, 17 blamed themselves for the death, 10 blamed God, and 9 blamed others--doctors and husbands in particular (14 voiced no opinion). This anger and blame is intensified by the fact that in approximately 70% of stillbirths, no discrete cause of death can be discerned (Donnelly 1979). The guilt involved can be overwhelming, as the mother goes meticulously over the events of her pregnancy, trying to discover any etiological factors. Failing this, she may turn her feeling outward. Anger and

guilt, then, while normal components of grieving, may be particularly pronounced in parents of stillbirths.

Parents who did not see or hold their baby may have particular difficulty in the phase of yearning and searching. When there is no clear perception of the baby, the searching may go on endlessly, for it cannot be mitigated by defensive processes. Women may report hearing phantom crying when no infant is around (Davidson 1979). Mothers have told the authors that they still feel the baby move even after its birth. It is also normal for women to feel jealousy at babies of others.

Disorganization

While the processes of shock and numbness and searching and yearning seem best to characterize the early months of mourning, the latter half of the first year of bereavement may be characterized as a period of disorganization. Most of the work with stillbirth mothers has focused on the period when the woman is in the hospital and the first two or three months when she returns to her doctor, so little has been said about this later period of the grieving process. Davidson (1979) has explicitly addressed this period of disorganization and depression in stillbirth mothers. A mother's intense grieving gives way to feelings of depression, devaluing of self worth, and apathy. These characteristics have also been noted by Cullberg (1971).

Reorientation

Reorganization indicates that a mother has adequately resumed her place in society with minimal discomfort to her. The first step towards

reorganization for many women seems to be the point at which they are able to settle the affairs of the lost infant, to dismantle the nursery, with tears perhaps, but not great anguish. No parent severs the tie completely with the stillborn son or daughter, but a time arrives in which attention may be focused on the living. A complete resolution means she may decide to become pregnant again, not to replace her lost child, but because her mourning has been fully expressed and she can accept a new child in its own right. These statements are true for most patterns of mourning a stillborn child. However, because of the nature of the death, and lack of societal support for the grief of these parents, severe problems may ensue leading not to reorganization but pathologic variants of grief.

Pathological Variants of Perinatal Grief

It has been observed that families of stillbirths are at risk for pathological (Helmrath and Steinitz 1978; Lewis 1979) outcomes. These have been empirically studied only in mothers. Pathological outcomes may be divided into two categories: chronic intense grieving, and absent or delayed grieving.

Chronic Grief

The most typical presentation of chronic grief is depression. Jensen and Zahourek (1972) found 6 out of 10 patients followed at intervals throughout the first year of bereavement were significantly depressed. Cullberg, in a study of 56 Swedish women experiencing stillbirth, found a variety of serious psychological symptoms in 19 of the women one to two years after their baby's death. These symptoms

included 9 reports of anxiety attacks, 3 severe phobias (e.g., cancer or death), 3 deep depressions, 2 cases of obsessive thought and 2 cases involving psychotic reactions (Cullberg 1971). Other authors have likewise noted an increased risk for serious psychological problems in stillbirth mothers (Giles 1970; Lewis 1971; Davidson 1979).

Delayed or Absent Grief

Perhaps a more dangerous risk and also one that is more difficult to detect is the effect of grief which is pushed aside because it is too difficult with which to deal. This is the case of absent or delayed grief. Cullberg (1971) found that women who demonstrated a suppression of feelings about the stillbirth showed more prolonged psychological symptomatology than those who expressed their feelings.

Perhaps the most common variant of delayed or absent grief which occurs in stillbirth mothers is the rush into another pregnancy, usually within a year of the loss. Cain and Cain (1962) described a "replacement child syndrome" occurring in reaction to any bereavement a mother might experience. Mothers frequently have been encouraged to become pregnant in order to "forget the loss" by becoming busy with another child. The problems in both mothers and children are painfully evident: the mother never having worked out her original grief, searches for her lost child and "finds" him or her in the replacement child. The replacement child, however, is constantly compared with the idealized deceased child and therefore lives in the shadow of the dead child, often incapacitated by death phobias and fears of abandonment. Sometimes replacement children are held responsible for their sibling's death and live in a hostile-dependent environment with their parents.

In any case, becoming pregnant to resolve a loss appears to be a pseudo-resolution detrimental to all parties involved.

The replacement child strategy of coping with grief is seen in stillbirth bereavement probably more frequently than in any other case. Kennell and Trause (1978) basing their opinions on the psychoanalytic (but non-empirical) work of Deutsch have claimed that a woman loses part of herself in childbirth. While they do not recommend that women rush into pregnancy, they claim that the reason so many women do is out of a need for wish-fulfillment to have a baby. However, it is more commonly observed that parents of stillbirths mourn for the particular baby they lose, not just for the wish of a child. As for losing a part of one's self, this is a feature of all bereavements and is not peculiar to perinatal loss.

There are other problems involved when a family fails to mourn a stillborn child. Emmanuel Lewis (1971, 1979) has described how siblings of stillbirths often become involved in destructive fantasies, especially when the mother acts with the irrational hostility of grief. Lewis and Page (1978) describe a case in which a woman became pregnant shortly after experiencing a stillbirth and subsequently was unable to care for her new infant. Perhaps the best evidence of detrimental effects of delaying grief by becoming pregnant comes from the work of Rowe and associates (1978). They found that in a sample of 26 stillbirth mothers followed between 12 and 20 months, the only predictor of morbid grief reactions was the presence of a surviving twin or subsequent pregnancy within 5 months of the loss. Jolly (1976) has likewise warned against the attempt to replace the dead infant with another child. Both Jolly and Lewis (1971) have also noted problems with

anxiety in subsequent pregnancies. While Wolff et al. (1970) have suggested that the decision to become pregnant quickly was an individual matter that the physician should not try to influence, the existing evidence suggests replacement pregnancies may have severe consequences.

A mother and her family can develop any pathological variant of grief which may develop as a result of any bereavement. What has been described here are particularly evident patterns. Those who are interested in additional information on the outcomes of mourning and their predictors are referred to the works of Bowlby (1979) and Parkes (1975).

Conditions and Treatment in Stillbirth Bereavement

The conditions surrounding parents and treatment which parents receive, especially in the hospital, are believed to have a significant effect on how they will eventually resolve their grief. Cohen and associates (1978) have described crisis intervention with stillbirth parents as "assisting parental affirmation." This process of affirmation is what Parkes (1972) has called "realization." The parents of a still-born child probably have one of the hardest times of any bereaved adult dealing with the reality of the death and the permanence of changed expectations which it entails. The inability to fully realize death and accept the consequences is believed to predispose bereaved persons to pathological outcomes (Bowlby 1961, 1979). In the parents of a stillbirth, there are several conditions which may effect this affirmation process. They may include the reaction of others to the stillbirth (especially doctors, nurses, and families), whether or not the mother or father saw or held their infant, whether a funeral or memorial

service was held, whether autopsy results are received, whether siblings or close subsequent pregnancies are involved (discussed previously), previous losses, whether or not they receive appropriate crisis intervention and information concerning the grieving process, and lastly gestational age.

When a mother gives birth to a stillborn infant, the reaction of others, especially doctors, nurses and family members may influence the processes of grief. Until recently, society expected that a young mother would not grieve for a stillbirth, and doctors and nurses shared this attitude. It was not uncommon to hear the comment, "Don't worry, you can have other children," immediately after the delivery. Doctors, nurses, and families, being as uncomfortable with grief as anyone else, would avoid all mention of the death making it into what has been called a "nonevent" (Lancet 1977). Mothers were almost never allowed to see their infants for fear they would be unduly upset, as if they were not already. The attitudes of hospital staff are changing, but very slowly (Kowalski and Bowes 1976; Helmrath and Steinitz 1978; Rowe et al. 1978).

In 1971, Bourne conducted a study on the psychological effects of stillbirth on the doctor. He sent out questionnaires to 100 randomly selected doctors of mothers who had experienced stillbirth and 100 doctors of mothers who had live births in order to look at differences in reactions between the groups and differing doctor-patient relationships. This report was startling, for the doctors reported no differences in the maternal reactions to stillbirths or live births or in anxiety levels between the two groups of mothers in subsequent pregnancies. Bourne concluded that doctors had either neglected real

differences or could not deal with the grief at stillbirth. Significantly more stillbirth doctors than live birth doctors did not return the questionnaire, and among those stillbirth doctors who did, significantly fewer questions were answered at all; most responses were reported as "don't know." He concluded that doctors were subject to inordinate stress and patients were in danger of neglect when a stillbirth occurred (Bourne 1971).

Corroborative evidence has been given by Wolff and his colleagues (1970) in a longitudinal study of stillbirth mothers. They found that over 50% of mothers perceived doctors as cold or indifferent to them during their bereavement. Over 60% of the mothers rated nurses as cold or indifferent. Rowe et al. (1978) had similar findings; 60% of stillbirth mothers felt dissatisfied with the information offered them about the death and the manner in which the information was given.

While staff members may have a detrimental influence on the mother's well-being, they may also have a facilitating effect on the grieving process with supportive intervention. Rowe et al. (1978) found that stillbirth mothers who had followup were considerably more satisfied with their treatment. Schreiner, Gresham, and Green (1979) found that a simple, caring, phone call from a physician accounted for a reduction in reports of major problems in the intervention group when compared with stillbirth mothers who had received no phone call. The nursing literature is likewise replete with examples of how nursing responses may greatly facilitate the grieving process (Seitz and Warrick 1974; Saylor 1977; O'Donohue 1978). Queenan (1978) has remarked that the help one can be to the family of a stillborn child is often underestimated

and he encourages both doctors and nurses to play a central role in the support of these parents.

One of the most controversial issues is whether or not the mother should see or hold the baby. Yet, in the literature, there is almost unanimous agreement that seeing and holding the infant is a helpful factor in successful grief resolution (Kowalski and Bowes 1976; Klaus Kennell 1976; Tizard 1976; Cohen et al. 1978; Saylor 1977; Kennell and Trause 1978; Scupholme 1978; Lewis 1979; Davidson 1979). The only research widely known which has touched on the effects of seeing the baby was by Kennell et al. (1970) in which seeing the infant was associated with full expression of grief. Kellner and Kirkley-Best (1981) have found that holding the infant was significantly more frequently associated with having a funeral and burial rather than a hospital disposal (cremation). This may indicate that mothers who hold their infants are more willing to deal with the painful reality of the death and treat it as they might the death of an older person, or it may mean that holding the infant emphasizes the reality to mothers, facilitating more beneficial grieving processes. Further work is needed to define these affects. In general though, holding and seeing the infant seem beneficial. When a mother cannot or has not seen her stillborn infant, artifacts such as footprints, photographs, and apparel become critically important to the mother. These have likewise been observed to have beneficial effects (Klaus and Kennell 1976; Davidson 1979).

The same authors, cited previously, who encourage parents to see their stillbirths also note the positive effect of an autopsy. According to Queenan (1978), Cohen et al. (1978), and Kellner and associates (1981),

the autopsy seems to allay guilt and anxiety in parents of stillborns. Even when no definite cause of death is found emphasis on the baby's normality seems to alleviate a great deal of parental concern. A caring explanation of the results serves to increase communication and trust between parents and their doctors. These effects have yet to be studied in depth.

Intervention Programs

In the last few years, a variety of intervention programs have arisen to offer support and information to families experiencing stillbirth. Most of these programs include in-hospital visits and followup of parents at regular intervals. Some intervention programs are run by parents of stillbirths themselves (such as PEND, Parents Experiencing Neonatal Death, Klaus 1980) and some are individuals (e.g., psychiatric nurses). Still others are bereavement "teams" (such as the Perinatal Mortality Counseling Program at Shands Hospital in Gainesville, Florida; Kellner, Kirkley-Best, Chesborough, Donnelly, and Greene 1981). Most programs involve the same sort of treatment--a mother is supported and encouraged to express her feelings, she is offered full options in regard to her infant (seeing the baby, photographs, etc.) and she is followed up throughout her bereavement period. (For a full description of procedures, see Kellner et al. 1981). These programs seem to have a beneficial effect on the grief of families involved. Further research may lead us to the most appropriate methods of crisis intervention.

The gestational age of the infant as a factor in perinatal grieving has never been systematically explored. Almost all of the

research which has been conducted in the area of perinatal grief has been with women losing an infant in the third trimester of pregnancy or the first weeks of life (Kennell et al. 1970; Cullberg 1971; Rowe et al. 1978). Jolly (1976) has indicated that parents losing a one pound infant should receive the same regard as those losing full-term babies, but has not specifically observed how early grieving responses occur. One may get some idea that they occur very early based on scattered reports from different disciplines which have found that grieving responses occur towards early fetal death in adolescents (Horowitz 1978) and in an adult sample undergoing second trimester abortion (Pasnau and Farash 1977). Exactly when women begin to respond with an intense sense of loss, and the variables affecting the loss, has not been studied. Pepper and Knapp (1980) explored grief in reaction to three kinds of loss: miscarriage, stillbirth, and neonatal death. They concluded that there was no difference in reactions to the three losses. Their methodology was unfortunately too poor to draw this conclusion. They divided the women into groups according to self-report about type of loss which is often an unreliable procedure. Women do not always distinguish among types of perinatal loss except at extremes, and neither does the public (Kirkley-Best 1981). Further, grief scores were determined by self-report questionnaires asking for retrospective accounts of how they had felt at the time. The length of time since the loss ranged from 6 months to 30 years. The authors chose to interpret the lack of significant differences among groups as evidence of the same reaction to all types of loss. This strategy would entail accepting the null hypothesis when no acceptance-of-the-null design was

offered. The lack of difference may be well argued to be due to the methodological flaws previously mentioned.

Conclusions and Areas for Research

For reasons not entirely apparent, research in this field has been surprisingly scant. Much of the research which has been published and which is widely known is filled with statistical errors, design insufficiencies, and rash conclusions drawn on the basis of very little data. This is not to say that the conclusions drawn from the research have been incorrect, but rather that more well controlled studies are needed. Many of the studies on stillbirth have focused on grief only in terms of Lindemann's (1944) symptomatology or Kubler-Ross's "stages" (1969). The picture of grief is much more complex than this and persons working with grieving mothers need to more fully educate themselves in the literature of grief and loss. At present there is an overwhelming need for careful research to enable an understanding of the particular aspects of stillbirth bereavement which affect these mothers and families. Without proper study, professionals are destined to follow the fashions of the popularized literature on grief without appropriately meeting the needs of families of stillbirths.

Statement of the Problem

When human attachments are in some way severed the result is grief regardless of the form it may take. Grief is used definitionally to describe the psychophysiological reaction to loss of an attachment figure. Observations of grieving reactions must necessarily lead us to the conclusion then, that there was a previously existing attachment. Applying this principle to prenatal maternal attachment, if pre- or

perinatal grief is observed, we have evidence of an existing attachment in pregnancy at least unidirectionally.

The central hypothesis in this study is that there is a maternal attachment toward the child in pregnancy which increases in magnitude and quality with the gestational age or length of pregnancy. Evidence for this proposition should come from observations of grieving reactions to prenatal loss which should also increase in quality and magnitude with length of time in pregnancy.

Gestational age (GES) is proposed to affect grief in large proportion if a developing attachment is occurring. Other variables which are felt to affect grief in general are felt to affect perinatal grief, although not as greatly as gestational age. These variables include demographic variables (age, race, socioeconomic level [SES], education level [Educ], and marital status), whether the pregnancy was wanted (Want), concurrent stressful life circumstances (Life), number of previous losses in pregnancy (ABS), number of children (Kids), size of the mother's family measured by number of her siblings (FamSize), number of previous bereavements (Loss), sex of the baby when determinable (Sex), and whether the baby was seen or held (SEE).

Demographic differences were predicted to be nonsignificant. If grief as a universal psychophysiological state is being measured, then demographic variables should not come into play as determinants of the level of grief. Whether the pregnancy was wanted should likewise be nonsignificant if an attachment occurs normally in the course of pregnancy. Life circumstances such as divorce, death and so on, has been predicted to intensify reactions. Likewise, with progressively more losses in pregnancy, a higher grief rating is predicted. The number of children

a mother has is thought to lessen certain aspects of the grieving process such as caring about one's own life, so the scores are expected to be attenuated somewhat from cases of first pregnancy losses. Size of the mother's family based on siblings is predicted to be uncorrelated with ratings of grief. Previous bereavements were thought to be associated with grief score, with a slightly negative correlation. Sex of the baby is predicted to be uncorrelated with ratings of grief. Seeing and holding the baby, while confounded with gestational age, should be associated with higher grief ratings, based on previous work (Kernell, Slyter and Klaus 1970).

Individual differences probably play a great role in perinatal grief as in perinatal attachment. Measurement of individual differences is not attempted in the present study because of the delicate nature of grief, and the confounding of results in administering measures of individual differences after the fact of the loss.

METHOD

Subjects

Thirty-eight subjects were recruited for the study. All subjects were women experiencing spontaneous abortion (miscarriage), fetal death and stillbirth, treated at Shands Teaching Hospital, Gainesville, Florida. Solicitation was done in person. Approximately 70 persons were contacted in the hospital within 24 hours of the loss. Of these original contacts, 41 returned in four weeks to their post-partum appointment at which time their participation was requested. There was no differential return rate of women at different gestational ages. While one can only guess at reasons for poor return rates, the nature of the population and emotional factors may have contributed. Shands Hospital is a regional care center and many clients come from great distances. Transportation difficulties are often responsible for non-returns to the post-partum clinic, both in cases of fetal losses and healthy pregnancies as well. Since mothers have usually attended the clinic throughout their pregnancy it may be particularly difficult for some of them to return to the painful reminders associated with the times in which the infant was alive. Mothers who may have seen the event as a minor one may have not returned because they did not feel it was critical, and may have considered cost and/or time factors. It must be emphasized however that all the reasons mentioned entail speculation, and may or may not

have influenced anyone's decision to return. Only one woman preferred not to be interviewed. Two women were not interviewed because of past histories of psychopathology. The age range was 16 to 42, with a mean of 23.76 and a standard deviation of 6.13. Fifty percent of the women were primiparas. Of women who had children, the mean was 2 with a standard deviation of 1.4. The mean education level (number of years) was 12.06 with a standard deviation of 1.89, and a range of 6 to 16 years. Most subjects were of middle to low socioeconomic status. Sixty percent of the sample was black. Twenty-nine percent had had one or more previous losses in pregnancy. Of those who had had previous losses in pregnancy, the mean was 1.5 with a standard deviation of .82. Forty-five percent were married, 50% were single and 5% were separated, divorced or widowed. The average family size from which the mother hailed was 5 siblings with a standard deviation of 2.8. Forty-seven percent of the population had experienced a previous death of a close family member with a mean and standard deviation of 1.44 and .68 respectively. Thirty-two percent of the women interviewed were in the first trimester, 39% were in their second trimester and 29% were in the final trimester, with a mean of 20 weeks and a standard deviation of 10.7. All participants were interviewed privately. Participants signed an informed consent statement before participating in the study.

Procedures and Materials

Within 24 hours of hospitalization all women were contacted by the principal investigator. Women received routine supportive care

from the Perinatal Mortality Counseling program during the in-hospital stay. All women were given appointments before leaving the hospital for a post-partum check-up in 3 to 4 weeks. While subjects waited to see the doctors at their post partum exam, they were invited to participate in a structured interview dealing with their experiences over the past few weeks. With the participants' permission, the interview was taped and identified only by subject number. The length of the interviews ranged from 20 to 45 minutes. The principal investigator conducted each interview, asking each person the same questions in the same order. When the interview was concluded and the tape recorder turned off, the participant was assured of the normality of all her responses. The purpose of the study was briefly described. Each participant then received further, routine care with members of the Perinatal Mortality Counseling Program. Subjects were offered a copy of the signed consent form and were informed that they might withdraw their participation at any time. A copy of the consent form may be found in the Appendix (Appendix I).

After the interviews were taped, they were edited to remove all references which subjects made regarding their point in gestation at the time of the loss and whether or not they had experienced fetal movement. The tapes were then rated by a trained rater, blind to both gestational age and the hypotheses in the study. The tapes were rated on a series of 10 characteristics of grief (Kirkley-Best 1980), on a scale of 1 to 5, in which "1" indicates "symptoms not present" and "5" indicates "marked presentation." An inter-rater reliability measure was used to verify ratings. Ten tapes were randomly selected and rated by a second

rater, an obstetrician, experienced with perinatal bereavement. Interrater reliability was $r = .78$ $p < .005$. Raters had no access to information central to the hypotheses or ratings from the other person. Those interviews for which two scores were obtained, received a rating equal to the average of those two ratings.

Training of the Raters and the Rating Scale

Raters were not told of the actual hypotheses involved in the study. Before any tape was actually rated, raters were met and methods of rating were discussed. Each category of ratings was gone over in detail. Raters were given examples of possible responses which might arise. Raters were told to take each category as a separate unit, and not to let ratings from one category influence ratings from another category. Raters were instructed to focus on the emotional content of the response in addition to the verbal content. Problems in ratings were discussed, including what constituted extreme scores. Raters were told to use a .5 rating between ratings if they felt unsure of their response. The tapes were to be listened to once thoroughly before the rating process began. For the first ten interviews, each individual rating was discussed and the trained rater was asked to explain why the rating was chosen. Only two categories on different interviews were in question in this initial 10. Rather than point out the category, the rater was asked to re-rate the two complete interviews. The categories were changed based on the general discussion in this case of the difference between minor disturbances in sleep and major disturbances, and between anger related to grief and anger which is connected to other tangible life

events. The high inter-rate reliability established supports the consistency of observation. The specific scales used for rating may be found in Appendix II.

The structured interview contained questions about general somatic distress, appetite and digestive disturbance, sleep, concentration and restlessness, preoccupation with thoughts and images of the deceased, anger and reproach, guilt, depression-despair-depersonalization, and caring about one's own life. Questions included in the interview may be found in Appendix III. An intercorrelation matrix of scales of the rating system with each other and with total grief score may be found in Appendix IV. Data sheets were collected on each subject drawing information from medical charts and self-reports of the subjects. Information obtained included number of previous bereavements, previous loss in pregnancy, size of the mother's family, religion, felt fetal movement, whether the baby was wanted and seen or held, and a variety of demographic variables. A blank copy of the data form may be found in Appendix V.

The mean rating and standard deviation (SD) for the somatic scale was 2.31 and .978 respectively. The mean and standard deviation for appetite disorder was 2.33 and 1.38. Sleep had a mean rating of 2.14 and a SD of 1.25. For concentration the mean rating was 2.46 and 1.02; preoccupation had a mean and SD of 3.53 and .91. Ratings of anger saw a mean and SD of 2.3 and 1.23, while the guilt rating averaged 2.4 with a SD of 1.0. Depression had a mean rating of 2.52 and a SD of 1.21. Depersonalization and time sense had a rating of 1.85 with a SD of .83;

caring about one's life received a mean rating of 2.51 and .949 SD.

These figures, along with the range for each scale, may be found summarized in Appendix III.

RESULTS

The scales of grief ratings were found to be consistent with the total grief score. The mean total grief score was 24.4 with a standard deviation of 7.9. The scores ranged from 10 to 42, out of a possible 50 points. A table of the range, means, and standard deviations of each scale may be found in Appendix VI.

Because of the relatively small sample size for regression, only 4 variables were chosen for entry into a regression model. Choosing 4 variables for the model was based on the principle of using approximately 10 subjects per term in the model (Kleinbaum and Kupper 1978). While regression procedures are seldom used with fewer than 60 subjects, the technique is deemed appropriate here for several reasons. While 60 subjects is a standard group size, predictive models resulting from such a size are often used to estimate responses of persons in general. In other words a 60-subject sample is still a relatively small sample size with most reference populations. An absolute sample of 38 is smaller than an absolute sample of 60; however, 38 subjects out of all who experience stillbirth or miscarriage in a year is proportionately a much larger sample than, say, 60 general psychology students out of a population of college-age persons. Of more concern than sample representativeness is Type II errors and wide and therefore less precise confidence intervals. These concerns are allayed though, by a demonstration of a significant and apparently stable model. Additionally, with severe violations of assumptions such as normality and heteroscedasticity

standard results do not differ appreciably from the more conservative non-parametric procedures which offer even further risk of Type II errors (Glass, Peckham and Saunders 1972).

The criteria for choosing the 4 variables of interest for the regression model included the following considerations. Gestational age, the critical independent variable, was retained without consideration because of its centrality to the hypothesis of increased grief scores with increased time in pregnancy. Other variables were chosen according to their inclusion in the original hypothesis, and their independence of gestational age and one another. Two highly correlated variables in a regression model result in great difficulty in demonstrating the significance of either variable. To achieve information about correlation among variables, all variables of interest were placed in a correlation matrix. The zero-order correlation matrix of all possible variables may be found in Appendix VII. The variance which fit all criteria for inclusion were gestational age, number of children, number of previous spontaneous abortions or fetal deaths, and degree to which the baby was wanted.

The analysis used was the Statistical Analysis System's (SAS) Stepwise Max/R regression technique. This procedure places each inputted independent variable in the model according to the maximum amount of variance explained, or the maximum amount of increase in variance explained. With four inputted variable, Stepwise Max/R produces the best 1 term model, 2 term model, and so on until additional variables add less than .5 percent to the amount of explained variance.

In the present study, for the best 1 term model, $\underline{R}^2 = .33$, $F = 12.36$, $p < .0012$. Using Type II sums of the squares, term selected in this model was gestational age, with $\beta_1 = .38$, $\underline{F}(1) = 12.36$, $p < .0012$.

In the best 2 term model, $\underline{R}^2 = .39$, $F(2) = 9.44$, $p < .0005$. The first term in the model was again gestational age; the second variable was number of children. For gestational age, $\beta_1 = .32$, $F(2) = 9.58$, $p < .0039$. For number of children, $\beta_2 = -1.8$, $F(2) = 5.08$, $p < .03$, using Type II sums of squares. Neither the number of previous pregnancy losses nor the degree to which a baby was wanted contributed more than .5 percent of additionally-explained variance, so the stepwise procedure concluded with the 2 term model.

Two scores were suspected as outliers (an unusual score obscuring trends in the data). When these outliers are removed, there is a significant rise in the amount of variance accounted for, yet the patterns of variables stay the same. With outliers removed, R^2 for the 1 term model (gestational age) is .37, $F(1) = 19.5$, $p \leq .00$. The 2 term model, (gestational age and number of children) increases R^2 to .41, $F(2) = 11.19$, $p \leq .00$. A summary of the regression data and the models may be found in Appendix VIII.

Variables which were predicted correctly include race, education level, SES, and marital status which were not significantly associated with grief score. Whether the pregnancy was wanted, number of the mother's siblings and sex of the baby were likewise unassociated with grief score as had been predicted. Those variables which were correctly predicted to be significantly associated with grief score include gestational age (positively correlated), number of kids (negatively correlated), seeing the infant (positively correlated) and concurrent stressful life circumstances (positively correlated). Incorrect predictions included age (predicted as insignificant, but positively correlated with grief

score) number of previous losses in pregnancy (predicted to be positively correlated but was non-significant) and number of previous bereavements (predicted to be negatively correlated, but no significant relationship arose). For the exact values, refer to Appendix VII.

DISCUSSION

Grief and attachment were proven to be two of the most difficult of human processes to measure. In this study, as in others, a grief score has been used as the dependent measure. Assigning a score to a person's grief must be viewed in any study as only a very rough approximation of the amount or quality of the grief experienced. The use of a trained independent, blind rater of interview responses has been used in the present study to circumscribe unreliable self reports which often are based on the degree to which a grieving person trusts the person administering a grief instrument. The flexibility of this method has allowed ratings of not only verbal content, but of emotional content as well.

The interview which was used in the study appears to be consistent and fairly reliable in its measurement of grief. Based on the positive correlations between each scale and the total grief score, inter-scale reliability is at least preliminarily established. Most of the scales produced an average rating of about 2.5 with a standard deviation of roughly 1, with two notable exceptions. These exceptions were preoccupation with thoughts and images of the deceased infant and depersonalization/time sense.

Preoccupation tended to receive higher ratings than all scales of the interview. Women in the interview spent by in large a great deal of time thinking about the loss whether or not all of the emotional components of grief were present. Women who lost the baby after quickening mentioned very frequently that they still felt the baby move,

although they universally recognized the movement as a disturbing distortion of reality. Even mothers early in pregnancy were likely to spend a lot of time thinking about the miscarriage, the pregnancy, plans for the future and what the infant would have been like. The higher mean score on preoccupation scale probably indicates the importance of fetal loss (and pregnancy as well) as a life event, whether or not the loss evokes full fledged grief reactions.

Depersonalization/time sense received a much lower mean score than the other scales. One may attribute this score to a somewhat less reported phenomenon (although it is correlated with grieving reaction) or to the difficulty which arises in articulating the experience. Both reasons may exert an influence although persons struggling with more intense grief reactions, seemed immediately to understand and identify with the phenomena of depersonalization when described. No one received a score indicating chronic depersonalization.

No factor analysis of the scores was attempted due to so few subjects in the sample. Clinical impressions indicate that the classifications seem appropriate, although a statistical investigation seems to be warranted in future research.

Of the two variables which have accounted for significant portions of the variance in the model, gestational age, as had been predicted, accounted for the most variance, or in other words, showed the greatest degree of relationship with the grief score. The pattern of relationship is one that would suggest a steadily increasing grief with losses later in pregnancy. There is not a leveling off of scores after quickening (about 20-25 weeks) as had been hypothesized by other investigators (e.g.

Taylor and Hall 1979). Quickening itself may be only one aspect or milestone of attachment of which there are many. This increasing grief intensity with later fetal death suggests conversely, a growing attachment process in pregnancy which does not, as some have suggested (Rubin 1975, Bibring 1961, Campbell and Taylor 1979) level off in the third trimester. This is not to discount intense grief reactions to early loss which of course can and do occur. Early intense grief may be the product not only of individual differences but of other circumstances as well which are very difficult and/or unethical to measure in early grief. The impression which emerges based on interview responses is one in which grief responses to loss in the first trimester are indicative of grief at the loss of future plans and of the "pregnancy," whereas grief at later loss is grief over the severing of an attachment to a particular child, an attachment already well-formed at birth. Bonding at birth is proposed to be another milestone in the realization of the child as an individual son or daughter, but bonding is not the point at which parents become attached to the child or not, attachment being a process already having long begun.

The number of children a mother has is negatively correlated with grief score accounting for additional, but less variance than gestational age. The number of children a mother has made a difference especially on some aspects of the grief scale. Caring about one's own life was particularly evident as a distinguishing scale, in which mothers with other living children were more prone to want to put their lives back together. Several mothers reported that if it were not for their child they would feel they could not go on. This pattern suggests that first losses may

particularly difficult. Attachment processes in the first pregnancy may also be of critical importance and needs to be further researched.

The two variables in the regression model which contributed almost no additional explanation were the number of previous pregnancy losses, and whether or not the baby was wanted. The lack of findings on previous pregnancy losses may be an artifact of the difficulty of quantifying the meaning of events to the individual mother. Based on interview responses, it appears that for some women, a first loss in pregnancy may be overwhelming, while for others, the first loss is taken as "something that just happened." This is especially evident in early loss where for some women the first or second spontaneous abortion may be taken in stride, but the third, for example may constitute a loss of not only a pregnancy but also of the ability to be a mother. Without adequate measures of individual differences, these relationships may only be estimated. The degree to which the child was reported as wanted was predicted to have been non-significant. The matrix of zero-order correlations among variables suggests that while marital status is associated with whether the baby was wanted, the grief score was not significantly associated with the degree to which a baby was wanted. While a sample size of 38 does not permit the ability to unalterably accept the null hypothesis and conclude no sort of relationship between these two variables at all, the prediction of the non-significance of the "wanted" variable permits more leeway in interpretation. One must be extremely cautious however in interpretations based on this sample size. Oddly, if there is any trend at all in the degree to which the infant was wanted and the grief score, there was a slightly negative one. Based on interview responses and the pattern in the matrix a conclusion may be drawn. While many

women find themselves in circumstances which contribute to not wanting the pregnancy, very few if any report not wanting the baby. The ambivalence which arises in these mothers is clearly evident. Caretakers would do well to recognize this dilemma in mothers contemplating alternatives such as elective abortion and adoption, and weigh carefully the emotional cost to the mothers. While many factors may arise which make a pregnancy undesirable, the development of a relationship with the unborn child progresses in spite of poor circumstances. The intimate and inextricable physical relationship between mother and developing fetus promotes a steadily progressing attachment regardless whether a mother prefers the pregnancy. The investment of self in one's offspring (especially first offspring) may come into play as well, although until more information is obtained little can be surmized.

Evidence for grief (and thereby attachment) as a universal, human process, is suggested by the predicted lack of findings on demographic variables. Race, socioeconomic status, and education level all show no relationship with grief score according to the matrix of zero-order correlations. Only age showed a significant negative correlation with older mothers showing scores lower than those of younger mothers. Since age is also positively correlated with the number of children a mother has, the relationship cannot be attributed to an aging process alone. The exact effects of age need further study. Demographic variables are known to have affects on the outcome of the grieving process (Kirkley-Best 1980); however, the actual psychophysiological process of grieving is thought to be universal. The lack of findings with so small a sample size must be approached with caution, although this lack of race,

education, and socioeconomic differences is in line with predictions and is consistent with the view of grief as a universal phenomenon.

The regression model (with outliers removed) including the predictors of gestational age and number of children accounts for over 40 percent of the score variables. When the regression model is used to aid prediction, an R^2 of .41 is not considered appropriate. (For example, if college grade point average was necessary to predict from SAT scores and high school average, one would want even greater precision, or an ability to explain 80 or 90% of the variance.) The model here was employed primarily for description of the variables affecting grief in pregnancy. For descriptive purposes, we have accounted for much variance by employing only two factors, time in pregnancy and parity. The remaining variance which has not been accounted for would be unwisely attributed to pure error variance. Personality and other individual differences probably account for the largest amount of variance. These individual differences are not easily measured as personality psychologists will attest, and to attempt to measure these characteristics in the immediate post-loss period is of questionable ethics. Grief can only be fully understood in terms of the context in which it occurs, and its meaning to the individual. The meaning of grief to an individual may be impossible to assess precisely. While one can count the number of previous bereavement experiences a person has had, this number does not yield us with information about how those losses were dealt with and resolved or with personality differences that affected both the attachments and the losses. Having accounted for so large a proportion of the variance with only two variables, not directly related to personality variables, suggests a considerable importance which these factors may possess.

Conclusion

The most central issue to keep in mind when dealing with parents experiencing a perinatal loss is that no single variable is appropriate for predicting or understanding an individual's grief. While it has been demonstrated that the time in pregnancy that a baby is lost is associated with grief ratings, there is little value in assuming, for example that early miscarriage will not lead to grief. There are individuals who are deeply grieved at even two month losses. All the aspects of a person's life which may affect any grief, affect grief at stillbirth and miscarriage.

The exact pattern of variables associated with grief ratings is more relevant with regard to theoretical considerations. A steadily increasing incidence of intense grief at pregnancy loss suggests a fruitful area of research in prenatal maternal attachment. Attachment factors in normal outcome pregnancy needs further exploration.

Probably the greatest information gained from this study is that women grieve at all points to loss in pregnancy even though there is a discernable rise in intensity of reactions across time of pregnancy. Based on previous literature and on the results of this study, it is suggested strongly that further research be conducted to aid these parents in their grief. Effective counseling and support for these parents will only come about with careful human research into the variables affecting perinatal grief.

One area of research which has been almost entirely ignored is the reaction of the father of the baby to the stillbirth. No one to date has dealt exclusively with any variables pertaining only to fathers of still-born infants. Preliminary observations lead to the suggestion that while reactions in fathers differ widely, they are often just as intense as

maternal reactions and in some cases are even more intense. Anger seems to be particularly evident in fathers, as does an inability to discuss emotional responses to the loss. An exploratory study of fathers is a promising area of future research.

The way a family copes with stillbirth and other fetal death needs to be explored as well. Children's reactions to stillbirth have been almost universally ignored except in clinical reports in which destructive fantasies ensued (Lewis 1977). The family structure in this crisis seems likewise to be a fruitful area of research, based on previously discussed risks of divorce and separation in these parents.

Attitudes which persons hold towards stillbirth has begun to be explored by the author. Findings suggest that there exist a relative lack of understanding among friends, relatives, and the medical community about the intensity or even presence of grief at stillbirth. What the factors are in changing these attitudes needs further research.

Other variables need to be carefully teased apart to view the significant role each may play in stillbirth bereavement. These variables have been noted to have affected perinatal grief but have never been empirically explored. These variables mentioned previously, include the role of the autopsy, seeing the infant (at all points in pregnancy), follow-up care, artifacts and momentos of the baby, the bereavement history of families and so forth. The major conclusion which has been arrived at in this study though, is the importance of taking the intense grief of these parents seriously, allowing them to mourn their infants, and recognizing that infant as briefly encountered as a stillborn infant or miscarried fetus still maintains an important role in the lives of mothers, for whom the child was a real son or daughter however short the life.

Summary

There has been relatively little research which has addressed grieving processes to loss in pregnancy. Many persons have assumed that no maternal attachment occurs in pregnancy and therefore that grief should not occur at loss. This study has been directed at observations of grieving reactions to losses occurring at all times in pregnancy, and the variables affecting those reactions. The central hypothesis in the study was that there is a maternal attachment towards the child in pregnancy which increases in magnitude and quality with the gestational age or length of pregnancy. Other variables predicted to affect grief or not to were concurrent life circumstances, number of previous losses in pregnancy, number of children, number of previous bereavements and demographic variables.

Thirty-eight subjects experiencing prenatal loss were interviewed at one month post-partum regarding their experiences during the previous month. The structured interview was taped, edited, and blindly rated on a 10-scale rating system of grief characteristics and symptomatology. A random sample of 10 tapes were blindly rated by a second rater. An inter-rater reliability measure of .78, $p \leq .00$ was established.

As was predicted when employing SAS Stepwise/MaxR regression procedure, gestational age accounted for approximately 37 percent of the variance in the grief score, increasing to over 40 percent with the addition of number of as the second variable.

The number of previous pregnancy losses and the degree to which the pregnancy was wanted were not significantly associated with grief score. Demographic variables as predicted were not associated with

grief score, however stressful life circumstances was significantly and positively associated with grief score, with $r = .45, \leq .01$.

The relationship of grief score with the variables described above are discussed. Implications for maternal attachment in pregnancy and directions for further research is offered.

APPENDICES

APPENDIX I
UNIVERSITY OF FLORIDA
SHANDS TEACHING HOSPITAL
INFORMED CONSENT FORM

PARTICIPANT'S NAME _____

HOSPITAL NUMBER _____ PROJECT TITLE _____

PRINCIPLE INVESTIGATORS _____ DATE _____

I agree to participate in the research as explained to me below:

We are talking to women who have had miscarriages, stillbirths, and other perinatal deaths in order to better understand their experiences both in the hospital and at home. If we can get a better idea about the circumstances surrounding these events, we will hopefully be in a better position to help people handle the problems they might encounter. Your participation in this research will in no way affect the quality of the treatment you receive.

You will be asked simply to talk with one of the members of the Perinatal Mortality Counseling Program about your experiences and how you are feeling in general. This interview will be tape recorded. The information you give will be confidential and your name will not be known to anyone except the professional investigators in this project. On the basis of previous experience this interview appears to be without any noticeable discomforts or risks. Nonetheless, it is also possible that individuals may find the interview uncomfortable. The most common reaction is one of interest. The interview's length will depend on the individual, however we expect it to take no longer than one hour.

The investigator who talks with you will be happy to answer any questions you may have so you can decide whether or not you may wish to participate.

The above stated nature and purpose of this research, including any discomforts or risks, have been explained to me verbally by _____. Furthermore, it is agreed that the information gained from this investigation may be used for educational purposes which may include publication but that the information will not identify me personally. I understand that I may withdraw my consent at any time without prejudice. I agree to participate in the procedure and I have received a copy of this description.

Signed _____

I have defined and fully explained this research to the participant whose signature appears above.

Signed _____
Research Investigator

APPENDIX II TRAINER RATING

Following is the rating scale supplied to the raters. Each category contains certain descriptive terms to aid the rater in her/his decision. Many of the marker terms in each category were of a suggestive nature. Raters were warned that there might be any number of possible combinations of responses and that the descriptions of points were guidelines, and not absolute criteria.

The Rating System:

GENERAL SOMATIC DISTRESS

1. No somatic distress
2. A small amount of somatic distress
3. Moderate somatic distress
4. Much somatic distress
5. Intense somatic distress

APPETITE DISTURBANCE

1. No disturbance
2. Mild disturbance
3. Moderate disturbance
4. Much disturbance
5. Intense disturbance, practically unable to eat

SLEEP DISTURBANCE

1. No change in sleeping habits
2. Mild problems with sleep
3. Moderate problems with sleep, and/or some nightmares
4. Much sleep disturbance and/or nightmares
5. Insomnia, hypersomnia, and/or bad nightmares

CONCENTRATION AND RESTLESSNESS

1. No problems with concentration or restlessness
2. Mild problems with concentration and/or restlessness
3. Moderate problems with concentration and/or restlessness
4. Cannot stay with chores, read, etc. and/or restless to the point of not being able to carry out tasks
5. Near total lack of concentration, and restlessness approaching constant aggravation or irritation

PREOCCUPATION WITH THOUGHTS AND IMAGE OF THE DECEASED

1. Almost never thinks about or pictures the baby
2. Seldom thinks about or pictures the baby
3. Thinks about or pictures the baby on occasion
4. Thinks about or pictures the baby often and yearns for the baby
5. Unable even for brief moments to stop thinking about baby coupled with painful yearning

ANGER AND REPROACH

1. Feels no anger or blame
2. Mild anger and/or blame
3. Moderate anger and/or blame
4. Very angry, assigning blame to a source
5. Extreme anger, interfering with life, and/or taking action towards those held responsible

GUILT

1. No guilt or ruminations about events in pregnancy
2. A small amount of guilt/ruminations on occasions
3. A moderate amount of guilt/rumination on occasion
4. Thoughts of guilt and ruminations which do not subside
5. Intense guilt, likely to interfere with normal functioning

DEPRESSION, DESPAIR, AND LOSS OF INTEREST

1. No despair or feelings of depression
2. Mild depression
3. Moderate depressive reactions with some sense of despair on occasion
4. Loss of interest in daily activities, a lot of crying, depressed overall and occasions of great despair
5. Deep depression, frequent despair, and loss of interest

TEMPORAL ORGANIZATION AND DEPERSONALIZATION

1. No depersonalization or temporal disintegration
2. Either some time disturbance or minor reports of things seeming "distant"
3. Reports of difficulty with sense of time and/or things seeming strange or unreal
4. Reports of self-estrangement, or going through motions but not feeling that they are doing the actions and/or an inability to order events in time
5. Severe problems with time sense and/or chronic depersonalization

CARING ABOUT ONE'S OWN LIFE

1. Values highly, very positive.
2. Feels good about life

3. Ambivalent
4. Wants to die, but for others
5. Actual suicide attempts (or extreme lack of caring)

AVERAGED WITH AMOUNT OF CHANGE

1. No change
2. Small change
3. Moderate change
4. Significant change
5. Extreme change

APPENDIX III QUESTIONS

The interview began with the question:

How have you been feeling since we last spoke?

This question was not rated as it is simply a way to open up the discussion.

The following questions were used to rate general somatic distress:

- Do you find yourself sighing more than usual, less than usual, or about the same as before the loss?
- Have you felt in the past month any of the following symptoms or not?
 - Heart palpitations (heart beating very quickly)
 - Headaches
 - Muscular aches
 - Tightness in throat
- How is your physical energy?

The following questions were used to rate appetite and digestive disturbances:

- How has your appetite been?
- When you eat, do you have more trouble with digestion, less trouble with digestion, or about the same as before the loss?

The following questions related to sleep disturbance:

- How have you been sleeping?
- Have you had any dreams in the last few weeks or not? (different than previously?)
- If yes; can you tell me about them?
- Do you awaken earlier than before the loss, later in the morning than before the loss, or at about the same time as before the loss?

The following questions related to concentration and restlessness:

- Since you left the hospital, have you felt more or less irritable than usual, or about the same?
- How is your ability to concentrate, stay with chores, read, keep your mind on things, etc.?

The following questions related to preoccupation with thoughts and images of the baby:

- Do you ever find yourself thinking you are still pregnant, or not?
- Do you ever think about what the baby looked like?
- Do you ever find yourself even momentarily wanting to hold your baby even though the baby is not there, or have you not felt this way?
- Do you feel any sense of yearning for the baby or not?
- How often do you think about the loss?
- Do you ever try to stop thinking about the loss or not? Is it hard or easy? /or, if you were to try and stop would it be hard or easy?

The following questions related to anger and reproach:

- Have you felt more anger, less anger, or about the same amount of anger now as before the loss?
- Who has it been directed at, if at any one?

The following questions are related to guilt:

- Do you ever find yourself going over the events in your pregnancy to try and determine what happened, or not?
- Do you ever feel a twinge of guilt over the experience, or do you feel you were not to blame?

The following questions related to depression, despair, and loss of interest:

- Have you had any moments when you felt despair or felt as if you could just not go on, or have you not felt this way? Is this different than before?
- Do you find yourself crying more often, less often, or about the same now, as before the loss?
- Do you ever feel emotionally empty with regard to the loss, or do you have no experience of emptiness?
- Have you experienced any loss of interest in your normal activities?

The following questions related to temporal organization and depersonalization:

- Have you felt even momentarily as if things about you seemed distant and/or unreal? Have you felt this way about yourself? Is this different than before?
- Does time seem to pass more slowly, more quickly, or the same as before?
- Do you ever have trouble telling what order events occur in or does time seem the same as before the loss?

The following question related to caring about one's own life:

- How do you feel about your own life at this time? Is this different than before the loss?

APPENDIX IV INTERVIEW MATRIX

	GScore	Somatic	Appetite	Sleep	Concen- tration	Preoccu- pation	Anger	Guilt	Depres- sion	Depersonalization and Time Sense	Caring About Life
GScore	1.00 0.00										
Somatic	0.71 0.00	1.00 0.00									
Appetite	0.58 0.00	0.58 0.00	1.00 0.00								
Sleep	0.67 0.00	0.44 0.00	0.45 0.00	1.00 0.00							
Concentration	0.77 0.00	0.47 0.00	0.28 0.08	0.31 0.08	1.00 0.00						
Preoccupation	0.70 0.00	0.49 0.00	0.32 0.05	0.43 0.01	0.56 0.00	1.00 0.00					
Anger	0.76 0.00	0.51 0.00	0.30 0.07	0.29 0.07	0.44 0.00	0.44 0.00	1.00 0.00				
Guilt	0.53 0.00	0.33 0.04	0.33 0.04	0.11 0.51	0.49 0.00	0.31 0.05	0.53 0.00	1.00 0.00			
Depression	0.77 0.00	0.44 0.01	0.40 0.01	0.51 0.00	0.63 0.00	0.54 0.00	0.46 0.00	0.31 0.05	1.00 0.00		
Depersonalization and Time Sense	0.70 0.00	0.44 0.01	0.37 0.02	0.61 0.00	0.57 0.00	0.45 0.00	0.54 0.00	0.29 0.08	0.61 0.00	1.00 0.00	
Caring About One's Life	0.81 0.00	0.50 0.00	0.49 0.00	0.52 0.00	0.60 0.00	0.66 0.00	0.66 0.00	0.43 0.01	0.69 0.00	0.64 0.00	1.00 0.00

APPENDIX V
PERINATAL MORTALITY COUNSELING PROGRAM
PATIENT DATA FORM

Case No. _____
Mother's Name: _____ Hospital No. _____
Age: _____ Race: _____ Occupation: _____
Father's Name: _____ Present? _____
Age: _____ Race: _____ Occupation: _____
Mother's Address: _____
Phone Number: _____ No. Visits: _____
Pregnancy: Weeks: _____ Parity: _____ Clinic _____ Program: _____
Prenatal History: _____

L & D Information: _____

Residents Involved: _____
Baby: Name: _____ Sex: _____ Wt.: _____ Apgars: _____
S N Date of Death: _____ Date of Birth: _____
See: Mother: _____ Hold: Mother: _____
Father: _____ Father: _____
Others: _____ Others: _____
Gross Appearance: _____
Autopsy: _____ Photos: _____ Footprints: _____
Disposal: _____ Funeral: _____

Social

Mother/Father relationship: _____
Mother home situation: _____
Other children: _____
Significant others: _____

Counseling

Date of Admission: _____ Date of Discharge: _____

Seen by: (Underline Major) _____

Additional Information: _____

Mother's Religion _____

Mother's Educational Level _____

APPENDIX VI
MEANS, RANGE AND S.D. FOR INTERVIEW SCALES

Scale	Mean	Standard Deviation	Minimum Value	Maximum Value
Somatic	2.31	.978	1.00	4.5
Appetite	2.33	1.38	1.00	5.00
Sleep	2.14	1.25	1.00	5.00
Concentration	2.46	1.02	1.00	4.50
Preoccupation	3.53	.91	1.00	5.00
Anger	2.30	1.23	1.00	4.00
Guilt	2.40	1.05	1.00	4.00
Depression	2.52	1.21	1.00	5.00
Depersonalization and time sense	1.85	.830	1.00	3.50
Caring about one's life	2.51	.949	1.00	4.50

APPENDIX VII
MATRIX OF ALL VARIABLES

	Race	Age	GES	Klds	ABS	Marital	FamSize	SEE	Loss	Want	Sex	Life	SES	Educ	GScore
Race	1.00 0.00														
Age	0.09 0.57	1.00 0.00													
GES	-0.08 0.68	-0.13 0.46	1.00 0.00												
Klds	0.18 0.23	0.66 0.00	-0.23 0.17	1.00 0.00											
ABS	0.15 0.37	-0.05 0.78	-0.25 0.14	-0.08 0.62	1.00 0.00										
Marital	0.34 0.04	0.32 0.05	0.00 0.59	0.08 0.62	-0.02 0.90	1.00 0.00									
FamSize	-0.35 0.04	-0.12 0.50	0.06 0.68	-0.13 0.49	0.22 0.22	-0.27 0.13	1.00 0.00								
SEE	0.19 0.28	-0.04 0.81	0.48 0.00	-0.25 0.13	-0.09 0.61	0.13 0.46	0.06 0.76	1.00 0.00							
Loss	-0.23 0.18	0.22 0.19	0.19 0.27	0.23 0.88	0.30 0.07	0.12 0.49	0.38 0.03	0.25 0.15	1.00 0.00						
Want	0.43 0.01	-0.01 0.94	0.07 0.67	-0.17 0.32	0.10 0.57	0.31 0.05	-0.20 0.27	0.12 0.48	0.00 0.99	1.00 0.00					
Sex	-0.43 0.05	-0.45 0.04	-0.41 0.07	-0.20 0.39	0.34 0.13	-0.26 0.25	0.02 0.94	-0.23 0.00	-0.09 0.33	0.00 0.71	1.00 0.00				
Life	0.08 0.64	-0.27 0.10	0.29 0.09	-0.30 0.07	0.08 0.63	0.15 0.37	-0.00 0.29	0.08 0.67	-0.14 0.40	0.14 0.41	0.07 0.79	1.00 0.00			
SES	-0.29 0.08	-0.10 0.55	0.11 0.54	0.27 0.11	0.17 0.30	-0.29 0.08	0.34 0.05	-0.26 0.12	0.17 0.31	-0.03 0.87	0.28 0.22	0.22 0.19	1.00 0.00		
Educ	0.30 0.09	0.19 0.29	-0.35 0.05	-0.05 0.80	-0.13 0.48	0.18 0.31	-0.35 0.06	-0.07 0.71	-0.20 0.26	0.23 0.19	0.00 1.00	-0.27 0.13	-0.57 0.00	1.00 0.00	
GScore	0.10 0.57	-0.37 0.02	0.51 0.60	-0.37 0.02	-0.06 0.72	0.09 0.58	0.19 0.29	0.37 0.23	-0.01 0.95	-0.20 0.23	-0.26 0.26	0.45 0.01	-0.02 0.90	-0.14 0.42	1.00 0.00

APPENDIX VIII
SUMMARY OF THE REGRESSION ANALYSIS

Procedure: SAS Stepwise Max/R, Type II sums of squares

I. Best 1 Term Model:

$$Y_{\text{GScore}} = \beta_0 + \beta_{\text{GES}} X + \varepsilon$$

$$\underline{R}_2 = .33, F = 12.36, p < .0012$$

$$\beta_{\text{GES}} = .38, \underline{F}(1) = 12.36, p < .0012$$

II. Best 2 Term Model:

$$Y_{\text{GScore}} = \beta_0 + \beta_{\text{GES}} X + \beta_{\text{Kids}} X + \varepsilon$$

$$\underline{R}^2 = .39, F(2) = 9.44, p < .0005$$

$$\beta_{\text{GES}} = .32, F(2) = 9.58, p < .0039$$

$$\beta_{\text{Kids}} = -1.8, F(2) = 5.08, p < .03$$

III. Best 1 term Model with Outliers Removed:

$$Y_{\text{GScore}} = \beta_0 + \beta_{\text{GES}} X + \varepsilon$$

$$\underline{R}^2 = .37, F(1) = 19.5, p \leq .00$$

IV. Best 2 Term Model with Outliers Removed:

$$Y_{\text{GScore}} = \beta_0 + \beta_{\text{GES}} X + \varepsilon$$

$$\underline{R}^2 = .41, F(2) = 11.19, p \leq .00.$$

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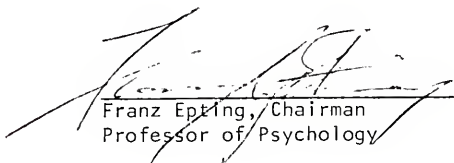
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BIOGRAPHICAL SKETCH

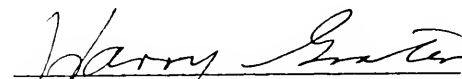
Elizabeth Kirkley Best was born in Mineral Wells, Texas, in 1954. She attended elementary and high school in Orlando and Winter Park, Florida, graduating in 1972. She began studies at the University of Florida in 1974, and graduated with high honors in 1977. In that same year she entered the graduate program in psychology at the same university. She received her master's degree in psychology in 1979, at the University of Florida where she is currently a doctoral candidate. She has one daughter, Sarah Rose, age 4. Elizabeth Best currently holds a teaching assistantship in the Department of Psychology, and holds a position of research psychologist on the Perinatal Mortality Counseling Program, Department of Obstetrics and Gynecology, Shands Teaching Hospital, Gainesville, Florida.

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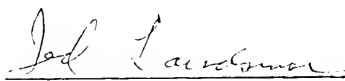
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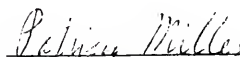
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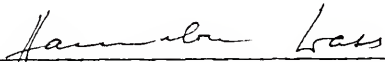
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This dissertation was submitted to the Graduate Faculty of the Department of Psychology in the College of Liberal Arts and Sciences and to the Graduate Council, and was accepted as partial fulfillment of the requirements for the degree of Doctor of Philosophy.

June, 1981

Dean for Graduate Studies and Research

